Looking for a Sign

The Acquisition of Discourse in Australian Sign Language

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Statement

Except where due acknowledgement has been made, this thesis represents the original research of the author.

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Abstract

Research on the ways that parents interact with their children has shown that parents talk with their children long before the children themselves have learned to communicate. Early interactions have been shown to be an important part of children's language acquisition because they model basic behaviours which are vital for successful communication.

The study of the organisation of communicative interaction, or language in use, in general, has been firmly based on the analysis of spoken language. In contrast, this study provides the first examination of the developmental acquisition of a native signed language, that of Australian Sign Language (Auslan). This study investigates the language socialisation process of deaf children with deaf parents, in particular, how children acquire the appropriate structures for discourse.

In order to understand the early processes of language acquisition, videotaped data of everyday language of 15 deaf children (aged between 6 weeks and 4 years of age) in dyadic interaction with their deaf mother were examined. Discourse analysis was used to examine the aspects of interaction previously suggested to facilitate the developmental acquisition of conventions, sequences and structures of interactive discourse.

The findings of this study indicate that deaf children are socialised to the nature and structure of signed language from the earliest stages of interaction. The development of discourse competence by deaf children shows comparable stages and sequences of discourse development to those previously found for hearing children acquiring spoken language. Further, deaf maternal fine-tuning of signed language, similar to that of spoken language, shows developmental progression accommodated to the developmental phases of the children. Early interactive experiences for deaf and hearing infants alike, provide introduction to fundamental behaviour patterns for language use, and are an important basis for social language development.

The results suggest that the early stages of acquisition of signed language, emerge from the same communicative bases as spoken language, and that certain discourse and linguistic capabilities may be present earlier than has been generally recognised. Further they suggest, that in circumstances where deaf children are immersed in a conducive language environment from birth, acquisition occurs through the naturally comprehensive modality of native sign language.

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Introduction

> *Men are created, not with a God-given language, but with a God-given capacity to make signs and sounds, and by the use of these to form a language. No child comes into the world with a language; that is an acquisition, and the child always acquires the language of its parents, or of those by whom it is surrounded.*
>
> (Kendall 1864)

The Thesis

Language is the ability to use symbols and to combine these symbols in order to communicate. The symbolic representation of the parts of the world in communication is not restricted to spoken language, for language may be also be signed. To develop an ability to communicate a newborn infant must progressively learn to separate different aspects or parts of its world, and then make direct reference to such parts in order to communicate that reality. The child must then learn to use appropriate referential symbols for these different parts in order to develop towards achieving the goal of communication.

The question of just how it is that children acquire these symbols has led to a great deal of language research in general. Research has variously concentrated on stages of development, language input, language experience, and, most recently, on language use in discourse or conversation. This research has, until recently,

predominantly considered the child's acquisition of spoken language. With the acknowledgment of visual-manual, or signed communication systems as 'true' languages, extension of the search for the basic characteristics defining language development has led research toward examining children's acquisition of signed language.

This thesis will consider the development of deaf children's discourse skills in the acquisition of Australian Sign Language. In order to view the development of the deaf child's interactional competency, this thesis will concentrate on everyday conversational interaction between parent and child. It will particularly examine the aspects of development which have previously been found suggestive of what is involved in the child's acquisition of socially-skilled language use.

The focus of this thesis, language for the purpose of social interaction, or discourse, can be seen as part of the wider field of child language acquisition. The purpose of this chapter is to provide a review of the literature of child language acquisition pertinent to the current perspective of children acquiring language within the context of discourse interaction.

1.1 Literature Perspective

The literature review traces the development of the current interactional perspective in the field of child language acquisition research, then briefly reviews the development of discourse analysis as a methodological tool and the place this holds in child language acquisition research. Further, the review focusses on research conducted in the field of signed language that has bearing on the study of signed language acquisition .

1.1.1 Child Language Acquisition

Child language research in the 1960s was dominated by the view that the child was endowed with an innate ability to acquire language, and that learning was determined by general cognitive capacity alone (Chomsky 1965). According to this view the problem for linguistic research was one of the ontogenesis of the mental representations of grammar (Ritchie & Bhatia 1999). Research focussed almost exclusively on the internal organisation of grammatical structures in the different developmental stages of a child's language acquisition. Exploration of the child's grammatical competence focussed on the productive language, the first words, meaningful units, simple syntactic patterns, and two-word combinations, while excluding the period prior to the first words, viewing it simply as a period of preparation. The attempts of this research to characterise precisely 'what is learned' by the child led investigation to turn from simply examining the linguistic rules that were learned, towards examining the contexts of interaction in which language was learned (Cook-Gumperz 1986; Harris 1992; McTear 1985).

This more dynamic view of language based its theory of language development on interactional principles which focussed on language as action, language as communication, language in use. Rather than actively working out the rules of language in isolation the child was now seen as acquiring language contextually, through interacting with others. Further, children's utterances, previously viewed as communicatively inefficient "inadequate adult sentences", were viewed as both rich and communicatively efficient, a supportive resource for understanding the processes and developmental aspects of the child's acquisition of language (Foster 1981:268). As a consequence of viewing the language development of the child as interactive a number of approaches in the analysis of the language acquisition of

children have emerged over the past two decades (Foster 1981; Harris 1992; MacLure 1981; McTear 1985)

One approach has been to examine the nature of linguistic input and the role of adult-child interaction in the acquisition of language. The initial findings on the nature of adult speech, to children, showed that adult speech, particularly maternal speech, to children had certain characteristics that distinguished it from speech addressed to other adults (Harris 1992). The characteristics which distinguished this speech, termed 'motherese', were, in essence, simplicity, brevity and redundancy (Harris 1992; Snow 1994). Research revealed that motherese was syntactically and morphologically simple, shorter in utterance length, highly repetitive, and, as a consequence of this simplified style, invariably grammatical. It also revealed that utterances to older children were longer and more grammatically complex than those to younger children, suggesting that motherese varied in complexity as a function of the child's age and productive capabilities (Cross 1977; Snow 1977; Snow & Ferguson 1977). Subsequent investigation of the unique register found in child-directed speech led to various investigations on the effects of motherese on language development. Correlating variables in adult speech with measures of the child's rate of language development, research established that there was little evidence of maternal adjustment at the level of sentence structure (e.g., Newport, Gleitman & Gleitman 1977); there was, however, strong evidence of such adjustment to the child's ability at a discourse level (e.g., Cross 1977).

Interest in interactional maternal styles, and the finding that children differed in both pattern and rate of language acquisition, led to a second approach examining the suggestion that certain styles might be more facilitative to a child's language development than others. Studies focussing on investigating variation in the children's language revealed two predominant styles of language acquisition: one

'referential' in nature, and the other 'expressive' (Nelson 1973). The referential style of language development is characterised by an initial bias toward the use of nouns, particularly toward object-naming, and variety and flexibility within lexical categories. The expressive style is characterised by greater heterogeneity in vocabulary, use of formulaic expressions, and with a propensity toward imitation. Systematic research showed the differing styles to be evident in both the child's productive and perceptive capabilities, and related differentially to aspects of grammatical development. Each style favoured primary means to enter language, situation-specific application of language, and different rates of acquisition overall (Bates, Bretherton & Snyder 1988; Hampson & Nelson 1993).

Concurrent investigation, which was focussed on the role of variation in maternal style of interaction, revealed that: brevity and simplicity of maternal utterances; supportive and positive function of utterances (e.g., suggestions, confirmations, explanations); and quantity of maternal speech in contexts of shared activity (e.g., play, picture-book reading); all evidenced a facilitative effect on language growth and development (Furrow, Nelson & Benedict 1979; Ellis & Wells 1980). The principal finding from this dual-focus investigation of style variation was that accelerated language development was predominantly associated with interactive contexts, resulting in the understanding that "(t)he existence of child-to-mother influence does not weaken ...the position that parental modelling of functions contributes to individual difference. ...(and) are no more likely to reflect exclusively child-to-mother than they are mother-to-child influences" (Furrow & Nelson 1984:533).

Convergence in the areas of early social communication and language development led to a third approach to child language acquisition, examining the emergence of

linguistic structure within the context of interaction. Social communication studies examining the nature of pre-speech behaviours found that infant behaviours such as eye gaze, facial expression, hand, arm and body movements functioned to promote the infant's communication with others (Bullowa 1977; Lock 1978). Non-verbal elements were viewed as providing the infant the means to participate in communication before the development of conventional verbal elements. This view of non-verbal elements as intrinsic to language development added impetus to potential explanations for the ontogenesis of language being found in early mother-infant interactions.

Studies considering language in relation to behaviour found that not only did infants use these movements to communicate, but, in many aspects, the manner in which they were used resembled conversational interactions between adults (Collis 1977; Scrogg 1983). These early interactions, or protoconversations, appeared heavily embedded with rhythmic patterns, repetition of behaviour on the part of both mother and infant, joint and shared attention, and mutual action (Bateson 1975; Bruner 1975; Snow 1977). Further, research into the aspects of preverbal behaviour speculated that early dialogues and interactive features found in social contexts (e.g., play, games, picture-book reading) enabled the infant to learn language skills in the process of interacting with others in patterned ways (Bruner 1975; Garvey 1984).

Prelinguistic interactions were conceptualised, not as communication *per se*, but as structures used by mothers to compensate for the infant's inability to convey meaning through verbal means (Bloom, Russell & Wassenberg 1987). The most important insight of these studies was that infants learn about language in highly familiar contexts of shared, reciprocal and socially interactive exchanges (Bruner

1983; Harris 1992). The understanding that the social context of language acquisition was not, as previously viewed, a separate topic from language acquisition was central to the emergence of a holistic approach to the study of children's language acquisition.

Early research on child language acquisition focussed on language as an autonomous formal system. Movement toward the systematic practices of language in use led to growing recognition that children learn basic communicative skills and acquire competence to communicate within social interactions (Blount & Kempton 1976; Camaioni 1979; Ochs 1979). Further, with the considerable evidence that certain kinds of social interactive events facilitated language development, and emphasis on the social contexts of language acquisition, attention began to focus more and more on characteristics of conversation with children (McTear 1985).

1.1.2 Discourse Analysis

The interactionalist approach to child language acquisition gave new impetus to studies of naturally-occurring, conversational speech. Subsequent study of child discourse focussed further on the creation of meaning in actual social contexts in mother-child interaction. Research in this area focussed on defining the properties of speech acts (e.g., requests, promises) by proposing sets of conditions for the appropriate performance of these acts, enabling one speech act to be distinguished from another (Cook-Gumperz 1986; McTear 1985). Various studies of speech acts in both adult-child and child-child conversation focussed on different aspects of production and comprehension by children, form and function of speech acts, and the potential effects of speech acts on language development (cf. Ervin-Tripp 1977; Garvey 1975; Scollon 1979). Critiques of this approach, however, have shown

theoretical problems of interpretation of context, which, as a central principle of the approach, was imperative to its direction (cf. Streeck 1980; Wells 1981). In essence, "(l)inguistic rules, as context-free abstractions from an everyday performance reality, are not able to provide us with the categories we seek to understand the situated activity of speaking" (Cook-Gumperz 1986: 49).

The situated activity of the speaker was central in a new approach to discourse analysis, described as the first step to "a naturalistic observational discipline to deal with details of social interaction in a rigorous, empirical and formal way" (Coulthard 1977: 52). Discourse analysis sought to understand the structures and practices of conversation, with emphasis on the systematic organisation of sequences of conversation encompassing multiple participants and their actions (Goodwin 1979, 1981).

Analyses of general conversational rules have since provided useful insights into the common exchanges and procedures of: opening exchanges (Schegloff 1968); closing exchanges (Schegloff & Sacks 1973); turn-taking (Sacks, Schegloff & Jefferson 1974); digressing or side-sequencing (e.g., Jefferson 1972); and repair (Schegloff, Sacks & Jefferson 1977). Mainstream work within discourse analysis continues to reveal that particular types of sequences of speech are organised in ways which are structured (Psathas 1995). Discourse analysis has proven an approach that "describes methods persons use in doing social life ...(and shows) the detailed ways in which actual, naturally occurring social activities occur and are subjectable to formal description" (Psathas 1995:53). The confirmation of order in language interaction, and the acknowledgment that close examination of actual occurrences enabled description and analysis, have proved of great interest to the research of child language acquisition.

The confluence of the new interactional approach to child language acquisition, and the analytical approach to discourse, led to research concerned with the development of discourse and conversational abilities in children. The explicit concern of studies of children's conversation was to use discourse analysis as a way of extending knowledge of the child's linguistic competence, and the ways that such interaction facilitated the development of skills or abilities of children in social interaction (Corsaro & Streeck 1986; McTear 1985).

Although most work in discourse analysis has examined adults rather than children, attempts to show the development of communicative competence have found that: children produce discourse which is primarily socially adapted (Garvey & Horgan 1973; Keenan 1974); children progressively develop from an inability to sustain topic or produce contingent talk, to an age where they produce extended sequences of contingent discourse (Garvey 1977); and, children's basic awareness of, and ability to respond to discourse obligations (e.g., questions) develops with age (McTear 1981). Further, analyses of children's discourse have begun examination of: turn-taking and cohesion of turns (Keenan & Klein 1975); turn completion (Gearhart & Newman 1977); gaining and directing attention (Carter 1978); discourse co-operativeness (Wells, Montgomery & MacLure 1978); conversational repair mechanisms (Garvey & Berninger 1981); contextual influence on structures of conversation (Wells, MacLure & Montgomery 1981); and, the developmental acquisition of discourse skills (McTear 1985).

Examination of the detailed forms within sequences of child language interaction, and in some cases the general forms of organisation of interaction, has shown that, to some extent, the organisation of children's discourse is similar to that found in the adult system; and further, children's discourse skills are important in a child's

access to social interaction with peers (Corsaro 1979), in determining peer acceptance (Hemphill & Siperstein 1990), and in making positive impression of adults in positions of power (e.g., teachers) (Evans 1987). Discourse analysis has so far provided child language acquisition research with an important basis for specifying in more detail the features of communicative skills by which children develop an ability to interact with others through language (McTear 1985; Schley & Snow 1992; Wootton 1981).

Most work in discourse analysis has examined interaction among adults rather than among children, and the main thrust of child discourse interaction has been more concerned with enlarging the understanding of children's communicative competence. An awareness is, however, emerging that discourse analysis may be of more than marginal interest to those working on child language, given the increasing concern with systematic and interactional matters within the area of child language research (Cook-Gumperz 1986; McTear 1985).

1.1.3 Signed Language Acquisition

Investigation in the 1960s, detailing the structure of signed language (Stokoe 1960), led to repudiation of the view that signed languages were little more than "primitive communication systems lacking the properties required for classification as languages" (Siple 1982:313). Early linguistic research on signed languages[1], influenced by the structuralist approach and focussed on 'legitimising' signed languages, concentrated on showing parallels to spoken languages (Johnston 1996).

1 'Signed language', although not as commonly used as 'sign language', will be used consistently throughout this thesis for the purpose of contrasting signed language with spoken language.

Impetus for research in child language to focus attention on signed language was provided by the convergence of a number of factors: the reorientation of linguistics to the role of mode, whether auditory-vocal or visual-manual, in defining the form and functions of language; the search for basic characteristics of language structure and processing, and in defining characteristics of language that hold for all languages (i.e., 'universals') (Woll, Kyle & Deucher 1981); and, the extension of child language acquisition research into less conventional communication systems for possible "valuable insights into normal linguistic functioning" (Konstantarea, Oxman & Webster 1978:213). In essence, the area of signed language provided "unique" opportunities for research of language acquisition to broaden "knowledge of language and its use", and verify the universality and resilience of the ability of children to acquire language (Siple 1978: 8; Spencer & Lederberg 1997).

The study of signed language acquisition, although tending to "lag behind" developments in child spoken language research, has generally followed the trends of spoken language research (Kyle & Woll 1985:68). Initial signed language acquisition research tended to concentrate almost entirely on the comparative acquisition of phonologic, grammatic and semantic functions. Research on the early stages of signed language acquisition has shown deaf children tend toward: use of one sign to denote several functions, or one-sign utterances to serve as whole sentences (Holmes & Holmes 1980; Lillo-Martin 1991); lexical bias toward action and motion verbs, and a paucity of items expressing mental and bodily states (Feldman, Goldin-Meadow & Gleitman 1978); use of meaning toward understanding and interpreting syntactic forms (Snitzer-Reilly, McIntire & Bellugi 1991); and, preference for simpler syntax over more complex structures (Prinz & Prinz 1985; Schlesinger & Meadow 1972). Research has also shown that the range and variety of semantic relations expressed, as well as the timing order of their

emergence, closely map that of hearing children (Hoffmeister 1982; Newport & Ashbrook 1977). Comparative studies have shown, overall, that deaf children learning signed languages show stages and sequences of language acquisition analogous to those of hearing children learning spoken languages (Wilbur & Petitto 1983; Volterra & Erting 1990).

Other investigations of signed language acquisition have concentrated on the development of manual language skills in deaf children of deaf parents, providing distinct opportunities to examine aspects of development of language with a visual-manual emphasis. Research of the visual-manual mode of language evidences the use of different sensory modalities in development of communicative strategies (i.e. vision, touch) (Maestas y Moores 1980), increased responsiveness toward visual attention in infants, children and adults (Erting, Prezioso & O'Grady-Hynes 1990), communicative behaviours designed to attract and direct visual behaviours (Waxman & Spencer 1997), and, modifications to ensure simplicity, clarity, and brevity in language addressed to young children (Spencer & Lederberg 1997).

In conjunction, investigation of social interaction and early language development of deaf children has similarly shown the essential role of visual attention in signed language interaction (Jamieson 1994), and the necessity of simultaneous attention to language and the non-verbal context for that language for lexical acquisition (Mohay, Milton & Hindmarsh 1996). Examination in the areas of signed social interaction and language acquisition is still underway in an effort to understand the modality constraints and resources of signed language, and the subsequent influences these may have on the processes of signed interaction.

Lagging slightly behind spoken language acquisition studies, signed language acquisition study has only recently begun to analyse signed language interaction from a discourse perspective. As yet "very little is known about the development of conversational interaction" in signed languages (Marschark, Siple, Lillo-Martin, Campbell & Everhart 1997:53). Initial forays examining signed discourse interaction, primarily of American Sign Language, have shown that: deaf children develop appropriate tactics for conventional turn-taking (Prinz & Prinz 1985); the structure of child discourse in signed language appears similar to that of adult sign discourse structure (Prinz & Prinz 1985; Wilbur & Petitto 1983); deaf children acquire competence in strategies specific to signed language, early in their development, that enable them to engage in discourse with their siblings, peers, parents and other adults (Prinz & Prinz 1985); and, the constraints and resources of the visual-manual modality influence the organisation and structures of signed discourse (Baker 1977; Hall 1983; McIlvenny 1995).

In general, the aspects of signed discourse that have been described are only suggestive of what is involved in socially-skilled discourse interaction in signed language. Study of signed discourse interaction does, however, suggest that deaf children do acquire discourse skills in a manner parallel to hearing children (Prinz & Prinz 1985; Wilbur & Petitto 1983).

Admittedly, in the examination of discourse analysis child signed language research has not yet 'caught up' with child spoken language research (Gallaway & Woll 1994; Schley & Snow 1993). Discourse analysis may, irrespective of language modality, prove to be the most important future development toward a holistic understanding of the process and development involved in the child acquiring language.

1.2 Thesis Perspective

The review of literature presents the recent changes of orientation in child language acquisition studies towards the now dominant perspective that input and interaction provide the necessary contexts in which language develops. Research attention has been directed to the facilitative aspects of interaction with children for learning about the function of social interaction in organising human attention and action (e.g., Bruner 1983; Harris 1992), about construction of integrated sequences or routines (e.g., Garvey 1984; Ochs & Schieffelin 1995), and the basic structure of discourse (e.g., Snow 1977; Schley & Snow 1992). Much of the value attributed to the early interactions described derives from their provision of the framework for language, and through their introduction of aspects of communicative exchange (Bruner 1983; Garvey 1984; Snow 1989).

A reconsideration of the general findings found to be facilitative for child language acquisition generated within previous frameworks will look to: the importance of caretaker speech to young children (e.g., motherese, protoconversation); the suggested relationship between early interactive sequences or routines/formats and later linguistic development (e.g., games, rhymes); the development of understanding and use of conventional language skills provided by general structures within interactive episodes (e.g., picture-book reading, question-answer); and, the interactive strategies that the child learns in the process and context of interacting with significant others (i.e., mother/father). As previously suggested, the facility children show with later language may lie in the establishment of prelinguistic communication skills (Bruner 1985). Alternatively, it may be the structure of the interactional episode itself that enables understanding of the development and acquisition of language (Harris 1992).

In line with the orientation of viewing child language acquisition within interactional episodes, and movement towards more naturalistic and interpretive approaches, discourse analysis will be used in this thesis to examine interactional exchanges between adult and child from a developmental perspective. Studies restricted to discourse analysis are primarily concerned with interaction as a basis for researching the development of attributes among participants. Discourse analysis is concerned with tracing systematics in the management of interactional matters, examining the detail, the format and positioning of features within sequences, with the aim of disclosing general forms or organisation. (Wootton 1981). Viewing language acquisition from a premise of interaction and discourse as a basic procedure for establishing and maintaining interactional exchange allows the child to be viewed as learning or acquiring language not in isolation, but within the context of interaction (Schley & Snow 1992). Further, viewing discourse sequences as interactive units, jointly constructed by participants, discourse analysis looks equally to all participants, allowing examination of conversational interaction which is neither speaker, nor situation specific (Sacks et al. 1974; McTear 1985). Analysis of children's discourse using this approach further provides for additional social information on the context of learning, and of the ways in which interaction is structured in the language.

Most children have been found to develop discourse skills with relative ease and automaticity (Schley & Snow 1992). As cited earlier, however, most of the available research rests on the findings of studies of spoken language acquisition. Recent investigations of young children's acquisition of signed language as a first language, though generally based on small samples, tend to indicate that the acquisition of signed language is remarkably consonant with spoken language, in respect to strategies and stages (Snitzer-Reilly et al. 1991). Most research to date,

however, has focussed on specific linguistic skills, as opposed to the composite of linguistic and non-linguistic skills involved in successful communication. The available investigation of aspects of signed communicative interaction suggests that the development and function of social interaction between deaf mothers and deaf children parallel that of hearing children (Harris 2000; Spencer & Lederberg 1997). As cited in the available literature, data from the acquisition of signed language discourse allows research a unique opportunity to ascertain the universality and resilience of the child's ability to acquire language (Snitzer-Reilly et al. 1991). Further, it allows comparative examination between the visual-manual mode of communication and the aural-auditory mode for possible insights into general linguistic functioning, and broader knowledge of language and how it is used.

Investigation of signed language from a linguistic perspective, and, in particular, child signed language acquisition, is still in the process of 'catching up' to spoken language research. Most studies concerned with the acquisition of signed language by children have examined various dyadic combinations of deaf/hearing adults interacting with deaf/hearing children. More than ninety percent of prelingually deaf children are born to hearing parents, and only a small percentage (five to ten percent) of deaf children are born to deaf parents (Gallaway & Woll 1994; Meier 1991). Research has established that deaf children born to deaf parents are exposed to conventional signed language from birth (cf. Caselli 1983; Meier & Newport 1990). Deafness is not the impediment to language development *per se*; it is the visual accessibility that is the critical factor affecting language acquisition (Mohay, Milton & Hindmarsh 1997). For these reasons the focus of the current thesis will be deaf children with deaf parents, as an essential subgroup within the deaf population in which archetypal language and behavioural development occurs (Kyle & Woll 1985).

This thesis, pursuant to the notion that interaction and input provide the basis for child language acquisition, will examine aspects of discourse proposed to be involved in socially-skilled, conversational interaction. Within the framework of discourse analysis this examination will focus on the dyadic interaction of deaf mother-infant/child discourse interaction in Australian Signed Language. Beginning in the prelinguistic period this thesis will look to the areas of protoconversation, motherese, initiation of conversation, and the general exchange structure of conversation. Attention will be given to the interactive exchanges found in the dyadic behaviours of mother and child, the linguistic and non-linguistic behaviours of each participant in the exchange, and the contributions of modality to the structure and acquisition of language within the exchange. Moving through interaction and communication in early infancy, to the development of interactive conversational skills, this thesis aims to extend the general knowledge of the contribution of discourse to the developmental path of the deaf child's acquisition of language.

1.2.1 Thesis Outline

The following chapter presents an overview of Australian Sign Language (Chapter 2), the language focus of this dissertation. The purpose of this chapter is to establish the nature of the language being acquired by deaf children, prior to examination of deaf mother-infant/child interactions in the language and the processes involved in the acquisition of the language. This chapter therefore presents a brief background of signed language as 'language', the social group who use this language, and the unique linguistic aspects of this language. The methodological processes, constraints and considerations of the current examination of Auslan are then presented in the Methodology (Chapter 3).

The following chapters examine aspects of discourse proposed to be involved in socially-skilled, conversational interaction: Protoconversation (Chapter 4); Motherese (Chapter 5); Initiation (Chapter 6); and Exchange Structure (Chapter 7). Each of these chapters introduces the particular aspect under examination, outlines conventions of the particular aspect, and reviews the available literature pertaining to the aspect. Following this, analysis of data examples of the aspect under consideration, found in deaf mother-infant/child interactions in Auslan, are presented and discussed. Each chapter concludes with a discussion of the main issues raised in the analysis of the given aspect in Auslan.

The thesis Conclusion (Chapter 8) presents an overview of the general findings from this study. It concentrates on the developmental course of discourse, tracing the processes of acquisition by deaf children, from prelinguistic through to linguistic discourse. Conclusions review the role that interactional exchanges between deaf mothers and deaf children play in the development of deaf children's signed discourse skills. Specifically, it concentrates on the role of the structure of exchange in the development of such abilities. This chapter closes with the conclusions of this dissertation concerning the acquisition of discourse in Australian Sign Language.

2

Australian Sign Language

> *Speech has only one dimension - its extension in time; writing has two dimensions; models have three but only signed languages have at their disposal four dimensions - the three spatial dimensions accessible to a signer's body, as well as the dimension of time. And Sign fully exploits the syntactic possibilities in its four-dimensional channel of expression.*
>
> (Stokoe 1979)

Introduction

The review of literature, in the previous chapter, introduced the investigation of signed language from a linguistic perspective as a relatively recent phenomenon. It is, in fact, only in the past two decades that analysis has proven signed languages to be 'true languages', comparable to any spoken language, in their use of finite, though complex sets of units and rules which allow the generation of unlimited varieties of sentences (Deucher 1984; Johnston 1989a; Sacks 1991). All the defining properties of 'language' have been found represented in signed languages. There are: equivalent levels of phonology, morphology and syntax; rules governing the ways words are formed, and how they are ordered; and, the ability to express any concept no matter how abstract. Signed languages have proven to have structure of comparable complexity to spoken and written languages, and perform a similar range of functions. There are differences between the various signed languages, and within signed languages there are differences in dialects of different regions.

Further, it has been found that various signed languages used throughout the world (e.g., American, Finnish, Japanese) are not mutually intelligible, and differ both in the construction of individual signs and in the structure of their sign sentences. In short, signed language defines itself to be a 'natural' language (cf. Johnston 1989a; Snitzer-Reilly, McIntire & Bellugi 1990; Sacks 1991; Yule 1985).

This chapter provides an overview of the signed language that is the focus of this dissertation, that of Australian Sign Language (Auslan). The purpose of this chapter is to establish the general nature of the language being acquired, between embarking on the examination of the processes involved in acquiring the language. This chapter therefore presents a brief background of Auslan as a language, the community of people who use this language, and the linguistic aspects unique to this language. It must be noted, prior to this overview, that the recentness of investigation of Auslan is reflected in the paucity of available literature concerning the linguistic properties of the language. Research, did not, in fact occur until the late 1980s with Johnston's (1987, 1989a, 1989b) initial descriptive, linguistic outline of the grammatical structures of the language. This work, along with the more recent investigation by Schembri (1996) of the lexical structure, continues to be seminal to any linguistic investigation of Auslan. The current overview of Auslan thus draws heavily on Johnston's[1] earlier work as the basis for description of the language.

2.1 Auslan

Australian Sign Language, known as Auslan, is the native sign language used by the people in the Australian Deaf community (Ozolins & Bridge 1999). Whilst

1 For a more comprehensive description of the grammatical structure of Auslan see *Auslan dictionary: A dictionary of the sign language of the Australian deaf community*, Johnston (1989a) and *The structure and formation of signs in Auslan (Australian Sign Language).*, Schembri (1996).

Auslan is superficially distinct from other 'English' signed languages there are fundamental common properties observed in Auslan, American Sign Language (ASL) and British Sign Language (BSL) (Deucher 1984; Johnston 1989a; McIntire 1982). Indeed, historically, Auslan emerged from BSL and may still engender enough mutual intelligibility for the claim to be made that the two languages exhibit a dialect relationship[2] (Johnston 1991; Tunbridge 1994).

Auslan has only recently been acknowledged as a viable and independent indigenous Australian language, as stated by the Federal Government in its national languages policy:

> "It is now increasingly recognised that signing deaf people constitute a group like any other non-English-speaking language group in Australia, with a distinct sub-culture recognised by shared history, social life and sense of identity, united and symbolised by fluency in Auslan, the principal means of communication within the Australian deaf community. Auslan is an indigenous Australian language..."
>
> (Department of Employment, Education & Training 1991:20)

The Australian Deaf[3] Community is a national 'community' of people estimated to number between 5,000 and 15,000 (Hyde & Power 1992; Ozolins & Bridge 1999). Members of the Deaf community include the profoundly deaf, the prelingually and postlingually deaf, the hard of hearing, and some hearing individuals. The defining criteria for membership is not degree of deafness, but the language of the minority community, Auslan (Johnston 1989a).

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2 Research indicates that there is over 50% of shared signs (Johnston 1991:3). Consequently, due to the limitations of available research on Auslan, this investigation of Australian Sign Language will avail itself of the literature available on American Sign Language and British Sign Language.

3 The use of the capital letter 'D' for the word 'Deaf', throughout this thesis, refers to membership, through linguistic and cultural allegiance, of the community which has developed through a shared experience of deafness. Additionally, as stated by Johnston (1989a:470), this convention "reflects in a written way how the Deaf themselves often use the word or its sign equivalent".

2.2 Auslan as a Linguistic System

In its deepest and most interesting respects Auslan is a language in its own right, with its own formal devices for relating visual form with meaning (Johnston 1989a). Like spoken languages, Auslan exhibits formal structuring at two levels: sign or word internally (i.e., equivalent to phonology in spoken language); and the sentence level which specifies the way signs are bound grammatically. Auslan has complex organisational properties similar to those of spoken languages, but also has grammatical devices of its own that are unlike those of spoken languages (Johnston 1989a; Schembri 1996). The surface forms of signed languages are, at all structural levels, influenced by the modality in which they are produced. This is apparent in the use of spatial contrasts and spatial manipulations at all linguistic levels, and in the language's tendency to rely on simultaneous layers of organisation (Snitzer-Reilly et al. 1990; Wilson 1991; Yule 1985).

2.3 Sign Structure

In Auslan the sublexical structure is made up of components which combine to form signs. These components are comparable to the parameters of spoken language that provide for phonological distinction. In constructing the base lexical unit, of the 'sign', it is the combinations of the elements of handshape, location, palm and hand orientation, movement, and facial expression which produce the linguistic form. Each sign is thus constructed through different combinations of these elements which may be produced simultaneously throughout the sign. A change to any one component may result in another distinct sign, encode another

meaning, or change the grammatical function of the resulting sign (Johnston 1989a:485; Snitzer-Reilly et al. 1990; Wilson 1991).

2.3.1 Handshape

Handshape refers to the shape of the hand used to produce a sign. According to Johnston (1989a) there are sixty three handshapes in Auslan: thirty one of these are major distinctive handshapes, and thirty two are regular variants of these (see Table 2.1 Major Handshapes in Auslan, following). Variants in handshape involve small, non-contrastive differences in hand configuration which are considered non-distinctive variations of the language (Schembri 1996). For example, the "Spoon"[4] handshape in Figure 2.1 is the major handshape, and the 'Spoon' handshape in Figure 2.2 is a variant of that handshape. The distinguishing difference between the major handshape and its variant is simply that the variant has the thumb extended rather than retracted. They are grouped together because "there are no minimal pairs in which either handshape is opposed to the other" (Johnston 1989a:486).

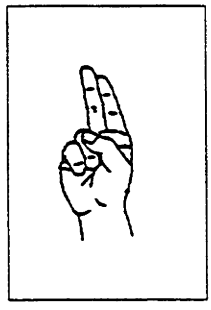
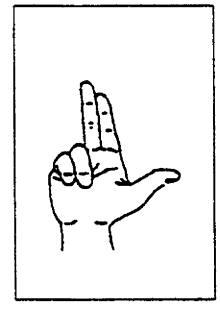


Figure 2.1 Base Form

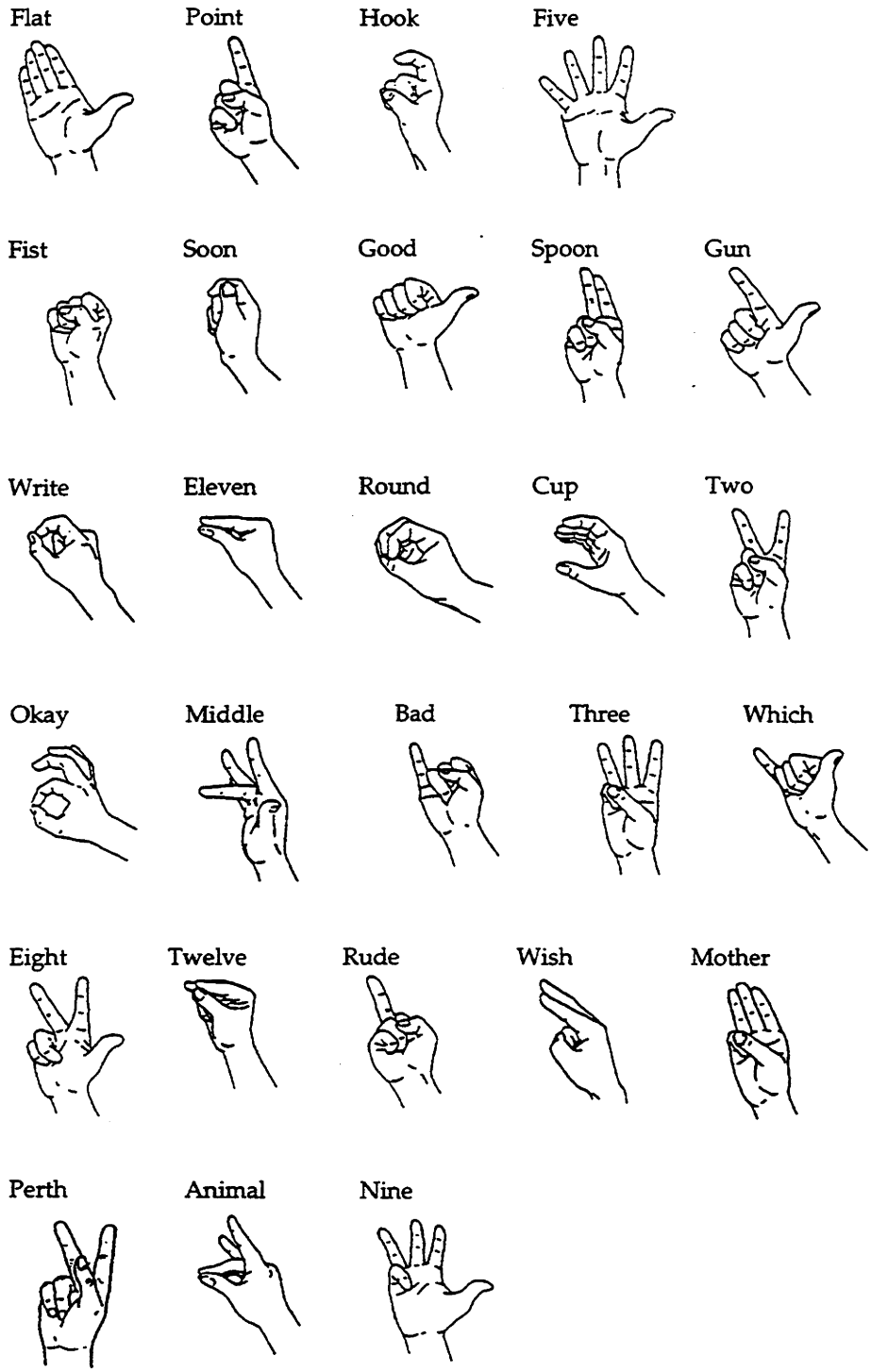


'Spoon' Handshape

Figure 2.2 Variant Form

4 Separate and distinct handshapes have labels or 'names' as ascribed by Johnston (1989a). For details on Auslan handshape labels refer to Johnston (1989a:486).

Table 2.1 Major Handshapes in Auslan



(source: Schembri 1996:24)

There are three categories of manual sign production, based on types of hand combinations, such that signs with one hand are termed one-handed signs (e.g., SMELL, Figure 2.3 below), with two hands of different handshape are termed two-handed signs (e.g., EGG, Figure 2.4 below), and with two hands with the same handshape are termed double-handed signs (e.g., SIGN, Figure 2.5 below) (Johnston 1989a; Schembri 1996).

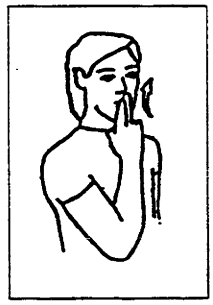


Figure 2.3 SMELL

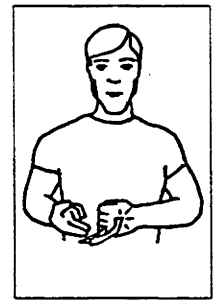


Figure 2.4 EGG

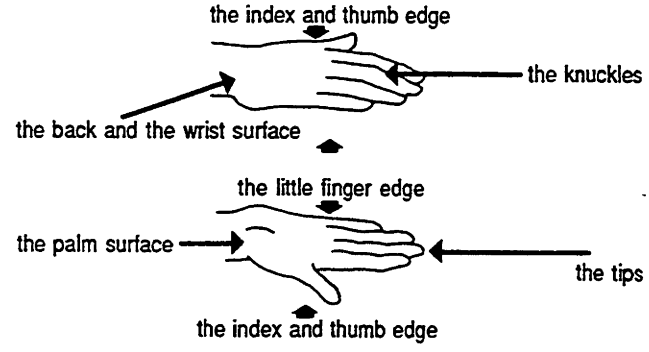
Figure 2.5 SIGN

2.3.2 Location

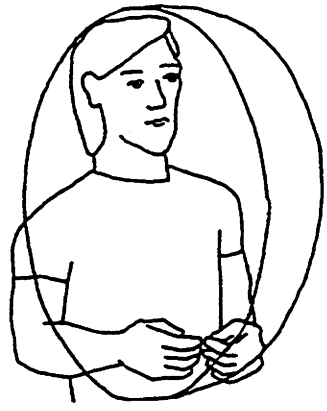
The second component of a sign is the location in which it is made. The locations of signs are categorised by the proximity to the body of the signer, and fall in two categories: signs which are made on the hands, and signs which are made on, or in close proximity to the body. Signs which are neither in contact with, nor in significant proximity to the body are made in "neutral space", located in front of the signer's body at about chest height (Johnston 1989a:487). These signing locations are termed either "primary locations" (i.e., signs made on or near the body), or "secondary locations" (i.e., two-handed or double-handed signs on or near the hands) (see Table 2.2 Sign Location in Auslan) (Johnston 1989a:486). An illustration of how sign location functions in Auslan can be seen in Table 2.3 (The Function of Sign Location in Auslan, following) which shows twelve signs formed with the same handshape and how they are distinguishable from one another by the location in which they are produced (Johnston 1989a; Schembri 1996).

Table 2.2 Sign Location in Auslan

Primary Location



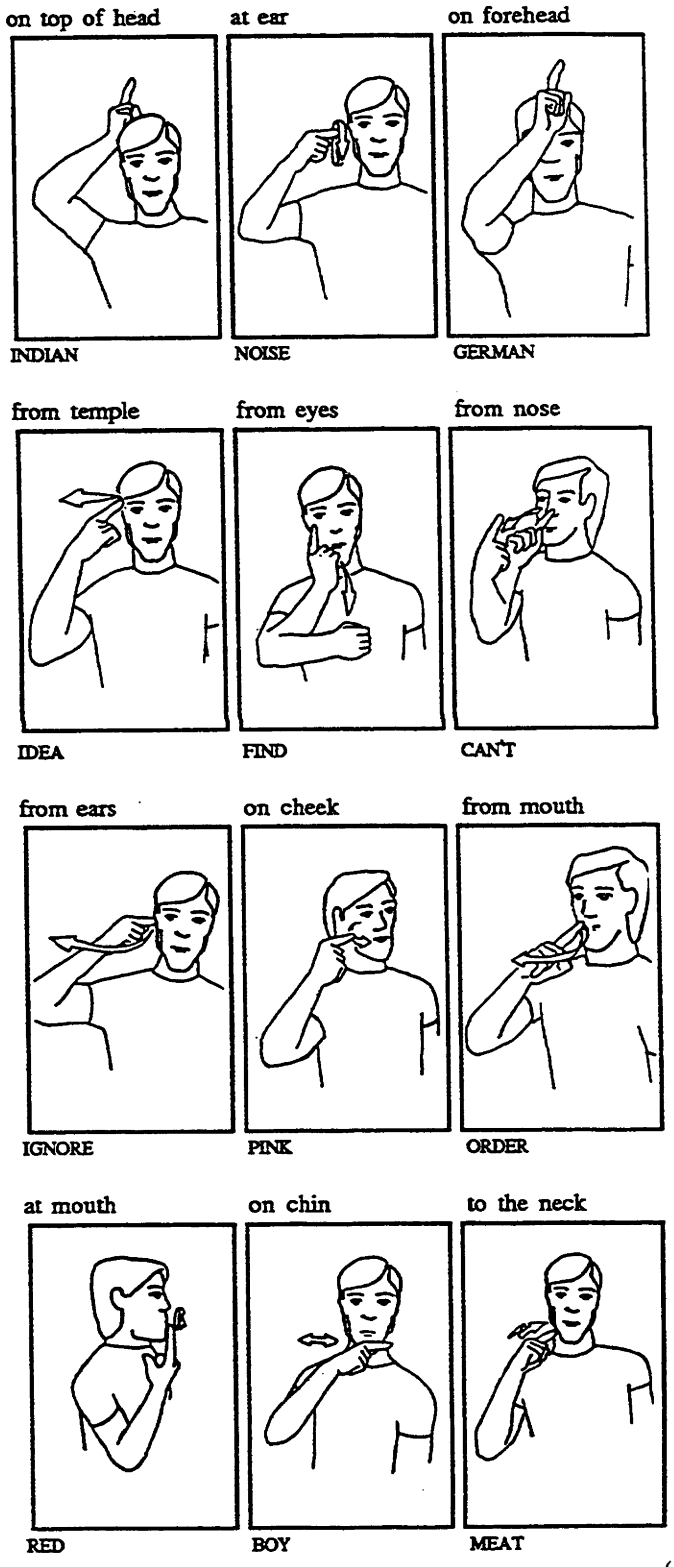
Secondary Location



Neutral Space

(source: Johnston 1989a:486-487)

Table 2.3 The Function of Sign Location in Auslan



(source: Johnston 1989a:487)

2.3.3 Orientation

Orientation is the third component of a sign, and refers to the direction of the fingers and palm of a hand during the production of a sign. The orientation of fingers and palm of the hand may be upward, downward, right, left, towards or away from the signer's body. In order to produce a sign correctly, particularly a sign which shares other formational elements (i.e., handshape, location, movement), it is important to know the orientation (Johnston 1989a; Schembri 1996). For example, the signs WEIGH and BALANCE (see Figures 2.6 and 2.7 respectively) are distinguishable only by the orientation of the palms. In WEIGH the palms of the hands are oriented upward, and in BALANCE the palms are oriented downward.

Figure 2.6 WEIGH

Figure 2.7 BALANCE

Further, consider WEIGH and DOUBT (see Figures 2.8 and 2.9 respectively) in which the hands for WEIGH are oriented outward away from the signer's body, and for DOUBT the hands are oriented to face one another.

Figure 2.8 WEIGH

Figure 2.9 DOUBT

Although a number of linguists examining the phonology of signs believe orientation is a redundant feature (e.g. Klima & Bellugi 1979; Valli & Lucas 1995), Johnston (1989b) and Schembri (1996) have noted of Auslan that orientation is a fundamental feature for the description of sign structure.

2.3.4 Movement

Movement, the fourth component of a sign, refers to a sign's movement through space. Movements in sign formation are categorised as either primary or secondary movements. Primary movements are large scale movements and consist of two sub-categories: path movement, which are the movements of a sign from one location to another; and local movement, which are the changes in handshape and orientation. Secondary movement refers to the small scale movements which are rapidly repeated movements that change the orientation of the hand, or the handshape of a sign (i.e., local movement) (Johnston 1989a; Schembri 1996).

Primary movements, for example, may simply use path movements which can be made in a single straight line or a series of straight lines, and arcs or circles, as illustrated in Figures 2.10 through to 2.12 below and 2.13 through to 2.15 on the following page:

Figure 2.10 THANK

Figure 2.11 SHARK

Figure 2.12 TABLE

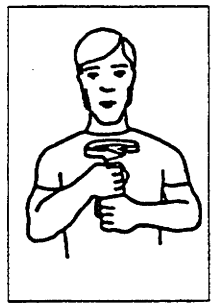


Figure 2.13 CAR

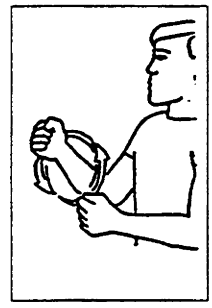


Figure 2.14 RUN

Figure 2.15 DEEP

Signs may also be made using only local movement, such as twists of the hand, opening and closing the hand, wiggling the fingers, and bending the fingers and wrists, again illustrated in Figures 2.16 through to 2.20 below:

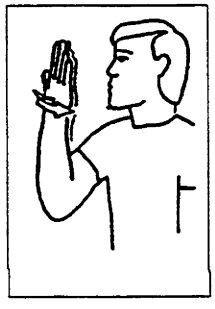


Figure 2.16 MIRROR

Figure 2.17 SPEND

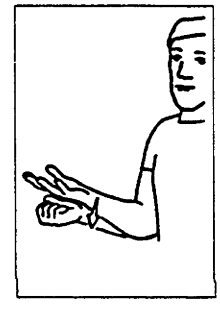


Figure 2.18 HAVE

Or, signs may be made using a combination of both primary and secondary movements, involving path movement combined with changes in handshape and orientation , illustrated by Figures 2.19 and 2.20 below:

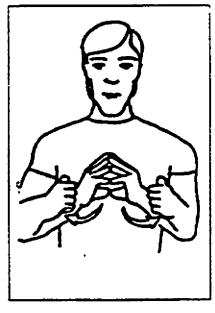


Figure 2.19 MELT

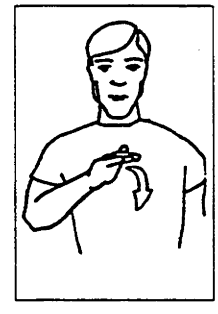


Figure 2.20 HOME

The components of movement for a sign may be repeated, either once or several times. They may also be used for modification or intensification of the meaning of a sign, and may involve parameters for stress, tenseness and speed (Johnston 1989a).

2.3.5 Expression

Expression is the non-manual component of a sign. The non-manual features of signs include the movement of the eyes, head and body, various facial expressions, head movements and mouth patterns. The range of facial expression types, subdivided into movement and action of parts of the face, head and body available in Auslan, are presented in the following Table 2.4 Non-Manual Features in Auslan. These non-manual features may often be made at the same time (e.g., pursing the lips and narrowing the eyes). Predominantly, non-manual signs co-occur with manual signs, however, in some cases signs may be distinguished from one another only in respect of the non-manual component. For example, the sign RECENTLY with the addition of a grimace and tilting the head to the right changes to the sign JUST THEN, as illustrated by Figures 2.21 and 2.22:

Figure 2.21 RECENTLY

Figure 2.22 JUST THEN

Although only a small number of signs are believed to include an obligatory non-manual component, non-manual features are fundamental to the construction of phrase structure in Auslan (cf. Johnston 1989a; Schembri 1996). For example, if a sentence is to function as a question it is typically accompanied by a raising of the eyebrows, and an optional, forward head tilt (Johnston 1989a). It has been suggested that grammatical facial behaviours in sign language may share characteristics with intonation in spoken languages, however, as noted by Johnston (1989a:490), "the exact meaning of some of these facial expressions is as yet open to question".

Table 2.4 Non-Manual Features in Auslan

Head	**Mouth**
Shaking the head	Opening the mouth
Nodding the head	Closing the mouth
Turning the head to the left	Poking out the tongue
Turning the head to the right	Protruding the lips
Tilting the head to the left	Rounding the lips
Tiling the head to the right	Vibrating the lips
Tilting the head backwards	Pressing the lips together
Tiling the head forwards	Drawing the lips back
Moving the head backwards	Stretching the lips
Moving the head forwards	Turning up the corners of the lips
Moving the head from side to side	Turning down the corners of the lips
	Pushing the tongue into the cheek
Eyebrows	Pushing the tongue down behind the
Raising the eyebrows	lower lip
Lowering the eyebrows	Biting the lips
	Sucking in air
Eyes	Blowing out air
Blinking	
Closing the eyes	**Cheeks**
Opening the eyes	Puffing out the cheeks
Opening the eyes wide	Sucking in the cheeks
Narrowing the eyes	
Directing the eye gaze to the right	**Shoulders**
Directing the eye gaze to the left	Hunching the shoulders
Directing the eye gaze forward and up	Moving the shoulders forward
Directing the eye gaze forwards and down	Moving the shoulders backward
	Turning the shoulders to the left
Body	Turning the shoulders to the right
Moving the body forward	
Moving the body backward	**Nose**
Turning the body	Wrinkling the nose

(source: Schembri 1996:32)

2.4 Signed Grammar

Recent research has shown that signed languages have highly-articulated grammars (Poizner, Klima & Bellugi 1990). Grammatical processes of signed language have been found to be conditioned in important ways by the modality, with many grammatical mechanisms exploiting the possibilities of both the spatial medium and multi-layered structure of production (Poizner, et al. 1990). The main areas in which Auslan differs significantly from English have been detailed in recent research, and are presented briefly, below (cf. Johnston 1989a, 1996; Schembri 1996).

2.4.1 Sign Modification

A striking feature of signed language is the internal modification of signs. Internal modification is the process of changing the way a sign is produced, in order to convey a variety of meanings. Modification of a sign can occur through a change in one of the internal components of that sign, i.e., handshape, location, orientation, movement or facial expression (Johnston 1989a). For example, the orientation of a sign can be internally modified by the direction of its production to incorporate the relative orientation of an object to the signer. For example, Figure 2.23 below refers to a WINDOW, while Figure 2.34 refers to a WINDOW to the right of the signer, and Figure 2.34 refers to a WINDOW to the left of the signer.

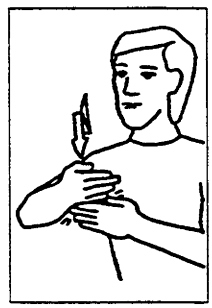


Figure 2.23 WINDOW

Figure 2.24 WINDOW $_{right}$

Figure 2.25 WINDOW $_{left}$

One of the more important internal modifications has to do with movement. Movement modification can involve: the direction in which a sign is made (e.g., allowing a sign to move from the speaker, to an addressee, to a third person in a conversation); the actual or relative movement of a sign (e.g., WALK produced in a slow zig-zag movement to show 'walk in a zig-zag'); a change or reversal of a 'time sign' to indicate time frames for events (e.g., movement forward generally indicates future time, and movement backward represents past time); or the quality and number (e.g., the number of repetition of the sign CAT indicates the quantity of cats) (Johnston 1989a:498). Internal modification of one component of a sign, however, often requires modification of other components within that sign.

2.4.2 Sign Vocabulary

Classes of signs in Auslan do not differ from the function of the grammatical devices found in some spoken languages, but they do differ in form (Poizner et al. 1990; Johnston 1989a). As noted by Johnston (1989a:503), "it is not easy to transfer the grammatical classes of words in a spoken language like English on to the signs of Auslan". While nominal and verbal classes in Auslan function similarly to nouns and verbs in spoken English, they differ predominantly in their formational properties. A nominal class sign in Auslan is typically made with short, sharp, restrained movement, as illustrated in Figure 2.26 IRON on the facing page. Verbal class signs are made with longer, more fluid movement than nominal signs, as comparatively illustrated with IRON in Figure 2.27, facing (Johnston 1989a).

Similar to classification of words in spoken English, in many cases it appears that determination of whether a sign is to be understood as nominal or verbal is provided by the context in which it occurs. Similar to contextual determination in spoken English, the context can be dictated by either the other signs in a phrase or sentence or the context of the discourse itself (Johnston 1989a).

Figure 2.26 IRON (Nominal)

Figure 2.27 IRON (Verbal)

Classifier signs in Auslan function to classify objects according to size and shape. Formationally the signs are able to express and encode meanings in ways different to spoken language. The class of classifier signs classifies objects using handshapes, and the signs are often ambiguous and context dependent. There are two kinds of classifier signs: descriptive and proform. Descriptive classifiers, in which the hands represent themselves within the handshapes, are used to describe the size and shape of object. More simply the hands, as classifiers themselves, are moved over, traced around or grasp an object. Descriptive classifiers, in this manner, are dependent on context for precise interpretation, for out of context the handshape reverts to only broad possible meaning. Proform classifiers specifically use handshapes (i.e., not the hands themselves) to represent the location, movement and orientation of objects, as that object itself is located, moves or turns in space. Proform classifiers are also highly dependent on context for specification. Both descriptive and proform classifiers have a base, or 'default' meaning which will change according to context. A clear context for classifier use is essential for clear definition of meaning (Johnston 1989a).

A very important class of signs in Auslan is "pointing" signs (Johnston 1989a: 504). The class of pointing signs has similar functions to that of pronouns, locations, and demonstratives in spoken English, and additionally is used to locate things in the

signing space. The class of pointing signs is highly context-dependent for meaning; that is, who is pointing, where they are pointing, what they are pointing at, and how and when they are pointing. For example, to indicate *I/me* one points to oneself, and for *you* or *he/she/it/there* one points to the addressee, as illustrated in Figures 2.28, 2.29 and 2.30 below, respectively (Johnston 1989a).

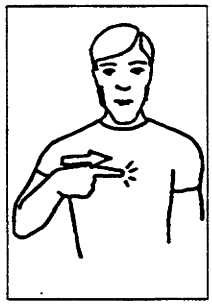


Figure 2.28 (*I/me*)

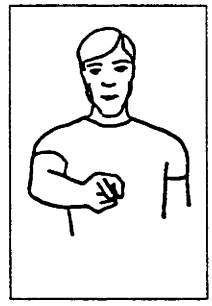


Figure 2.29 (*you*)

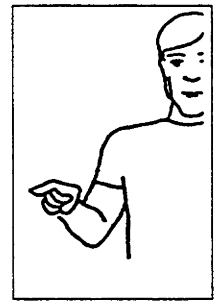


Figure 2.30 (*he/she/it/there*)

Plurality is represented by movement of the point, such that sweeping the point in an arc toward the referent(s) can represent *we/us*, and *they/them*, as illustrated in Figures 2.31 and 2.32 respectively (Johnston 1989a).

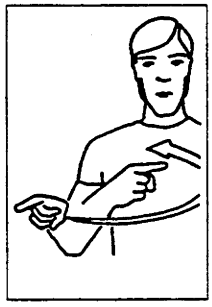


Figure 2.31 (*we/us*)

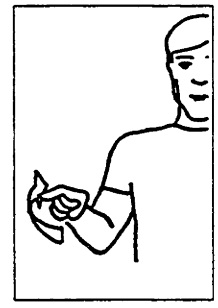


Figure 2.32 (*they/them*)

Similar to pointing in spoken language the meaning of the pointing signs in Auslan is completely dependent upon context. Pointing functions in both spoken and signed language for the purpose of reference to an object or place, something relevant to the position of the speaker.

2.4.3 Sign Order

Unlike spoken languages, which require special morphemes or word order to encode the relationship of object and subject relations, signed language relies primarily upon the manipulation of sign forms in space. The horizontal plane in front of the signer's torso, termed the "signing space" (Poizner et al. 1990:16), has an important role in the structure of signed language. Not only is this space the articulatory space which accommodates both hand and arm movements, it is also the space which carries linguistic meaning (Poizner et al. 1990; Johnston 1989a). This ability for spatial relationships allows Auslan to encode information about word order in ways which differ from the reliance of spoken English on particular words or word order to encode this information. For example, the relationship between subject and object in a signed sentence can be conveyed through the direction of a sign, or by the semantics of the sign involved. However, in the instances that signs in the sentence do not easily disambiguate potential subject-object relations, spoken English word order (i.e., subject, verb, object) is usually used (cf. Johnston 1989a).

Most sentences in Auslan, however, have a topic-comment structure with the signer establishing topic or subject first, followed by more information or a comment. Perhaps this is the main reason for the rare usage of word order alone to distinguish subject and object in Auslan sentences. Since signed languages unfold in a linear manner the topic-comment structure make sense as a discourse strategy (Johnston 1989a; Poizner et al. 1990). Essentially spatial in nature, the appropriate 'scene' or 'framework' is set by the topic, allowing the interpretation or commentary to follow (Johnston 1989a). The visual-manual modality constrains the speaker to establish the relative relationship between objects or participants prior to commenting upon

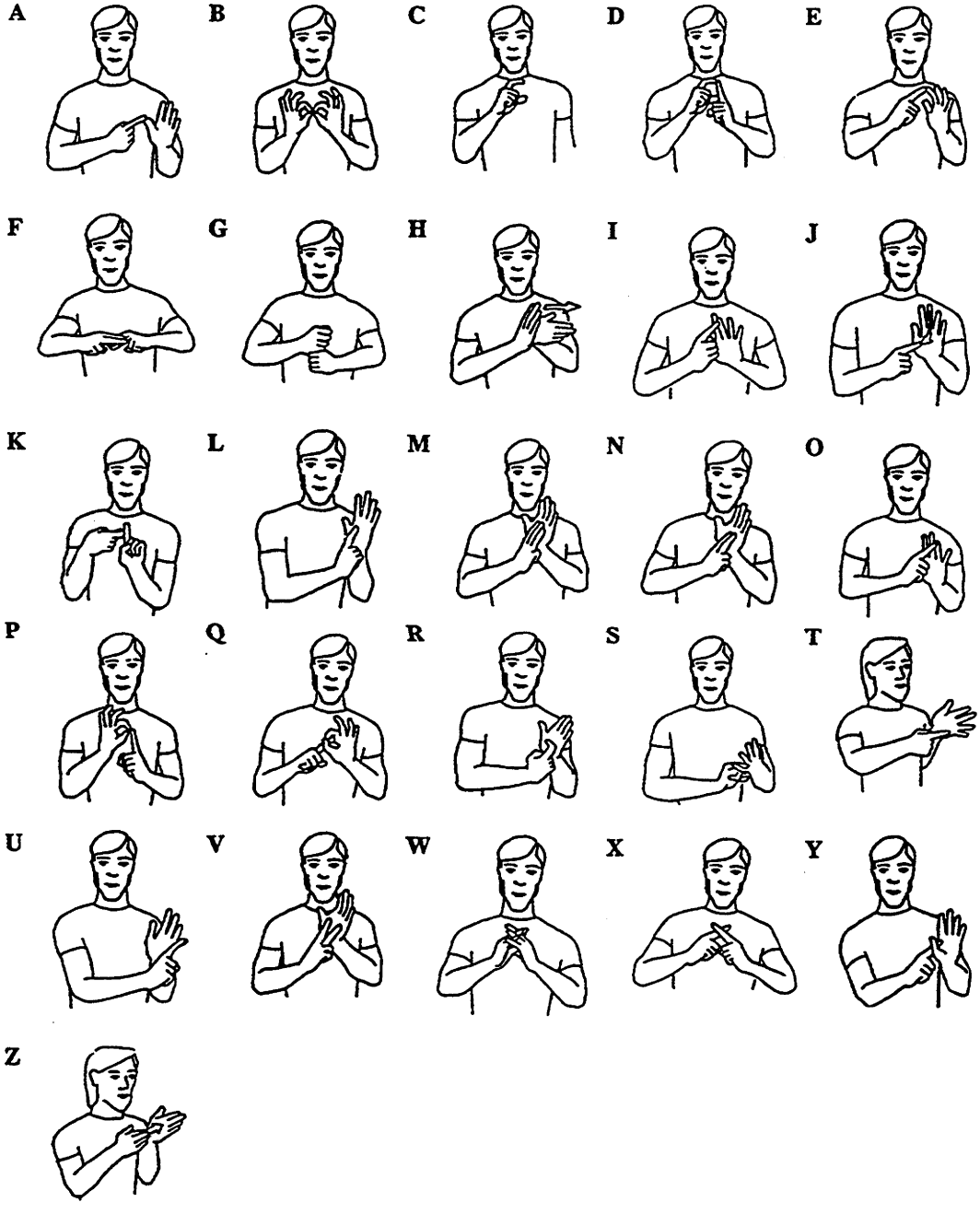
them. Very simply, the signer cannot speak about something that has not been established, and therefore is, in essence, not there.

2.4.4 Fingerspelling

Although technically not part of Auslan grammar *per se*, fingerspelling plays an important role in Auslan. Fingerspelling, or manual alphabets as these systems are known, is made up of hand configurations and movements which represent alphabetic symbols. These symbols are produced using the hands, and many of the resulting handshapes look similar to the shapes of letters in printed form (Annabel 1998; Johnston 1989a; Schembri 1996).

In Auslan the fingerspelling system known and used is a two-handed alphabet which is English-based (see Table 2.5 The Two-Handed Alphabet in Auslan). It is used essentially for the purpose of spelling the names of people and places (i.e., proper nouns), and English words for which there are no direct sign equivalents. Fingerspelling, when produced, looks to be a flowing arrangement of handshapes, but is, in fact, a string of distinguishable 'letters'. Fingerspelt letters are constructed by the hand being shaped to resemble the orthographic form of the English letter it represents. These letters are then combined together to spell out a particular word. Fingerspelling largely follows English orthography, yet considering fingerspelling as 'letters' is misleading. Each fingerspelt 'letter' utilises the components of handshape, location, movement and orientation, and may, dependent on signer or context, use the component of expression. Thus, each 'letter' conforms to the structural aspects of signing in Auslan, and, as such, may be considered a sign in its own right. Fingerspelling is regularly intermixed with signing and is considered to be an essential, expressive medium in Auslan (Annabel 1998; Johnston 1989a; Schembri 1996)

Table 2.5 The Two-Handed Alphabet in Auslan



(source: Johnston 1989a:510)

2.5 Summary

Research analysing Auslan is, as stressed in the introduction to this chapter, an extremely new area of linguistic research, and many of the details of morphological and syntactic structures used in Auslan have not yet been described in depth. As stated previously, it was not until the late 1980s, with the release of the initial overview of the grammatical structure of the language, that research of Auslan began (Johnston 1989a; Schembri, Wigglesworth, Johnston, Leigh, Adam & Barker 2000). Since the original work of Johnston (1987, 1989a, 1989b) very little descriptive work on Auslan grammar has been undertaken. Efforts have instead focussed on: lexicography (cf. Johnston 1997;1998; Johnston, Adam & Schembri 1997; Johnston & Schembri 1999); sociolinguistics (McKee, McKee, Schembri & Adam 1999); issues in applied linguistics (Branson, Miller, Marsaja & Negara 1996; Johnston 1991; Leigh 1995; Schembri 1997; Pardo 1998) language planning and politics (Branson et al. 1996; Branson, Miller & Marsaja 1998), and child language acquisition (Littleton 1996, 1998a, 1998b, 2000). The unfortunate reality that remains is that there is still "very little systematic empirical research available on the language..." (Johnston 2000:10).

3

Methodology

The deaf perceive the world through skilled and practised eyes; language is at their fingertips. When I wanted to learn about silence and sign language, I went to talk to the deaf.

(Neisser 1983)

Collection and Analysis of the Data

3.0.1 Subjects

The data reported was initially gathered from fifteen deaf subjects during two separate studies. Thirteen of the children were observed initially for an Early Intervention Signing (EIS) Program organised by a Government Hearing Assessment Centre. Five of the children from the EIS Program and two additional children were then observed six months later for a period of up to six months, specifically for the purpose of this research.

The corpus was based on longitudinal data examining the children from as early as six weeks (0;1.2) through to four years (4;0) of age. The children came from ten different families. Each child was congenitally deaf, with no known cognitive or physical disabilities. Each child had a severe (greater than 70dB) to profound (greater than 90dB) hearing loss (Bess & Humes 1995:110), and was unable to acquire spoken language naturally. In all cases both parents had some degree of

deafness and reported that the principal means of communication within the home, and the first language in which the children demonstrated facility, was Auslan.

This sample is somewhat unusual as it represents a relatively large sample of deaf children of deaf parents, archetypal native signers. The incidence of prelingual deafness in the Australian population is about 1 in 2,000, with only approximately 1 in 400,000 prelingually deaf children born to deaf parents (Hyde & Power 1992; Mohay 1991). Recent figures indicate that less than 5% of the estimated 5,000 to 15,000 individuals in the Australian Deaf community can be considered native signers of Auslan (Deaf Society of New South Wales 1998; Hyde & Power 1992; Ozolins & Bridge 1999).

3.0.2 Data Collection

Families participating in an Early Intervention Signing Program (EIS Program), were invited to participate in the present research. A letter was sent to the participant families, detailing the present research, asking permission to use previously recorded information collected for the EIS Program, and inquiring if they would participate in the present research (see Appendix 1, Letters to Participants). Families wishing to participate were asked to notify the Co-ordinator of the EIS Program, and arrange a suitable time for a home visit from the researcher.

All data examined in the current research was collected by videotape. Videotaping sessions took place within the child's family home. In all cases the videotaping was carried out by the same observer, who was known to the families participating in the EIS Program. The home visits were structured to encompass ordinary circumstances and tasks of child rearing. They included a variety of typical family situations, such as bathing, dressing, meals, and play. Parents were asked to follow their normal everyday routines. The content of the videotapes mainly involved

parent (usually mother) and child interactions, but occasionally other members of the family were also present. No special techniques were used to elicit conversation from the children. The sessions were structured to encompass 'normal' conversational interaction in order to obtain samples of everyday discourse.

The amount of taped data collected on each child ranged from 90 to 180 minutes. Each of the EIS Program sessions involved 20 minutes of videotaping with additional sessions, each 30 minutes in duration, recorded specifically for the purpose of the present research (refer to Table 3.1 below).

Table 3.1 Subject Characteristics, Number of Observations

Subject	Sex	Number of Video Sessions	Age Range (years; months. weeks)
1	Female	4	1;1 - 4;0
2	Female	6	2;4 - 3;10.2
3	Male	5	1;10 - 3;6
4	Male	6	0;4 - 3;10
5	Female	5	1;0 - 3;4.1
6	Male	4	2;0 - 2;7.3
7	Male	5	0;2.3 - 1;10
8	Male	5	1;0 - 2;7
9	Female	6	0;11.3 - 3;0.2
10	Female	6	0;1.2 - 2;0
11	Male	7	0;8.3 - 2;3
12	Female	5	0;1.2 - 2;10.3
13	Female	4	0;3.3 - 3;0
14	Male	3	0;1.2 - 0;8.2
15	Female	5	1;6 - 2;2

Note: Subject identification numbers are provided to allow the reader to cross-reference information provided in the various examples.

3.0.3 Data Transcription

For each session of observation the videotapes were transcribed. The transcription described both parent and infant/child[1] interactions during the observation periods. Extensive procedures were followed to ensure that all information in the signer's utterances was fully represented in the transcript. All grammatical information was recorded, with special attention paid to such salient linguistic devices as head and body movement, use of space, and eye gaze (sight line) information[2].

The data was initially transcribed by a linguist familiar with Auslan and discourse analysis. These transcriptions were then compared with transcripts of the relevant videotaped sessions that parents were asked to provide. All transcriptions were then checked by a Teacher of the Deaf (Bilingual Early Intervention [Auslan and English] and Sign Communication) who was familiar with the participating families. Any discrepancies were reviewed and transcribed accordingly. The transcriptions of each session were then analysed.

All categorisations were independently checked by a qualified bilingual teacher of Auslan (i.e English and Auslan). Average agreement was about 96%. All cases of disagreement were resolved by inspection of the videotape.

In summary, the written transcription of each videotape comprised a sequential record of all manual and non-manual behaviours for each subject. All utterances were numbered consecutively, and identified by the subject child's numeric code and the session number in which the utterances occurred. For example, (1:3:27-36) would indicate child 1, session 3, utterances 27 through to 36. The signed, gestural,

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1 An 'infant', for the purpose of this thesis is defined as "a young child from the end of the first months of life to the end of the first year of life" (Brown 1992:763). A 'child' is defined as "the human young, from infancy to puberty" (Brown 1992:289), in the case of this thesis 'from infancy to four years of age'.

2 While all the children vocalised in these data, vocalisation was not a major carrying factor in these signed interactions, and was transcribed only where relevant to the interaction.

and visual behaviours of each utterance were recorded using notational form, accompanied by a glossary written in standard English orthography. Details pertaining to the context in which each utterance occurred and behavioural information were also noted.

3.0.4 Data Analysis

The first analysis carried out on the transcriptions was an 'episode analysis' of conversational interaction, similar to that used by Harris, Jones and Grant (1983). This involved dividing the conversations into 'episodes', where an episode consisted of a series of more than two utterances characterised by some thematic continuity or organisation, and usually with no change of participants. Once the division into episodes had been carried out for both adult and child utterances both the video evidence and the transcription were checked back from the point of each episode change, to determine what had prompted the start of a new episode. In this way episodes were divided into those which began in response to child initiations, and those which were initiated by adults.

For each utterance the researcher marked the signs during which participants were looking, not looking, or shifting their eye gaze. The description of eye gaze in these data was limited to categorisation by: (a) type of eye contact (e.g., 'tracing' - eye gaze tracks or follows the sign being produced); (b) duration of eye contact in relation to signed utterances; and (c) behaviour immediately before and after the eye gaze (e.g., baby looks at object, grasps it, looks around), from the perspective of the addressee.

Each utterance was then coded using an adaptation of Adamson and Bakeman's (1984) scheme designed to characterise mother-infant interactions in spoken language. The format for this examination was adapted to note and characterise

Table 3.2 Coding of Literal Markers within Episodes

Code	Literal Markers	Brief Definition
Marks self or interactive activity		
1.	Positive affective expression	Sudden positive increase in affective expression
2.	Negative affective expression	Sudden negative increase in affective expression
3.	Perceptual self-marker	Discrete action which makes individual more salient visually and/ tactilely
4.	Person game	Series of actions that are organised by individuals and that makes the individual more perceptually salient, such as 'This little piggy' or 'peek-a-boo'
Marks object or event		
5.	Reposition infant to object	Mother orients infant so that objects are more salient and accessible
6.	Touch infant with object	Mother touches, taps, or brushes object against infant with apparent intent of attracting attention to the object
7.	Show/Display object	Object is placed in front of another; shown or displayed in front of another
8.	Animate object	Object is manipulated in a way that 'makes it come alive' with movement
9.	Animate object repetitively	Like Animate object, except the same sequence of movement is repeated three or more times separated by brief pauses
10.	Demonstrate object	Object is manipulated, displaying its potential use; actions are tailored specifically to object
11.	Demonstrate object repetitively	Like Demonstrate object, except the same sequence of animation is repeated three or more times separated by brief pauses

both mother and infant/child linguistic and non-linguistic behaviours in signed language. The first distinction of the coding system involved characterising forms of linguistic and non-linguistic behaviours as involving either Literal Markers or Conventional Markers. Literal Markers were coded as behaviours which characterise actions that highlighted or 'marked' specific parts of the environment by making them more perceptually salient, for example, when a mother leans forward to ensure her face is directly in front of her infant's face (i.e., a perceptual self marker), or when a mother shakes a bottle full of beads (i.e., object animation) because she is marking either herself or the object by changing the visual and/or tactile properties (refer to facing page Table 3.2 Coding of Literal Markers within Episodes). In contrast, Conventional Markers were distinguished as behaviours which had the potential to influence a participant's attention due to a shared focus or meaning. For example, a pointing gesture, if understood conventionally, directs attention to the referent pointed at, not to the speaker's hand which is the site of literal stimulation (refer to Tables 3.3 following, for Coding of Conventional Markers within Episodes).

The second main distinction of the coding system involved referents (i.e., objects). The code of Self-marking was used whenever participants appeared to attempt to gain and/or direct attention to themselves, and the interactive link between them and another participant without explicit reference to objects or events beyond the context of the existing interaction. The Object-marking code was used when participants appeared to attempt to gain and/or direct attention of another toward an object or event.

Following episode analysis and coding of utterances into literal and conventionalised behaviours, and self or object-marked, each episode was then coded depending upon the type of interaction under investigation.

Table 3.3 Coding of Conventional Markers within Episodes

Code	Conventional Markers	Brief Definition
	Marks self or interactive activity	
1.	Discrete sign, phrase	Person emphasises a sign or phrase, making it stand out from others through size, shape or movement
	Marks object or event	
2.	Discrete sign or phrase	Person emphasises a sign or phrase, making it stand out from other signs through its manner of production, calling attention to an object or event. Often a label, but may be a directive (e.g., LOOK) or a comment on another's action (e.g., GOOD)
3.	Discrete manual	Person uses manual point, or an emphatic head nod or shake
4.	Ritualised activity: book reading	Person reads book to another, structuring their actions so that discrete signs are repeatedly used
5.	Ritualised activity: objects	Persons exchange objects repeatedly using discrete signs to structure the activity
6.	Ritualised activity: other	Persons repeatedly perform discrete signs, phrases as they structure their actions using a single theme

3.1 Methodological Considerations

3.1.1 Collection Constraints

The 'Observer's Paradox' in obtaining data for linguistic analysis is that it involves observing "how people speak when they are not being observed" (Labov 1972:113). This is one of the most difficult aspects to overcome in obtaining data, particularly when recording a visual-manual language with an observer present, operating a video camera, within the language users' homes.

The presence of the videotape equipment may have had an inhibiting effect on a family's conversational interaction, and particularly on a child's language behaviour. However, every effort was made to maintain a casual and relaxed atmosphere in the recording sessions. Furthermore, the children were videotaped from infancy within the home environment on a regular basis, and so had been gradually introduced to the equipment and its use, and appear to have become accustomed to it. Additionally, the observer who taped the data had previously been accepted as an affiliate of the Deaf community, and, more importantly, had established a relationship with the participating parents prior to the recording sessions. The observer had also had previous interactions with the families in their home environment and was familiar with the children. Previous studies have also shown that children do not appear to be unduly affected by the presence of the video camera (cf. Garvey 1975; Ervin-Tripp 1979; McTear 1985). It is probable, therefore, that the data presented here would not have been significantly affected by the presence of the observer.

3.1.2 Ethical Constraints

The Deaf community within Australia, as a minority culture, forms a community that is relatively small in number and extremely socially cohesive. In order to reduce the possibility of participants being identified only the age, and periodical reference to the sex of the participant children have been reported. Reference to the children is limited to the 'infant' or 'child', and the parents as 'mother', 'father', or 'parent(s)'. Furthermore, in cases where a particular person's name or name sign has been referred to within the transcripted discourse, these have been substituted by the representation 'NAME' in the examples. In strict adherence to agreed conditions of data use there have been no other references to the personal details of the participant families. Line drawings[3] are used as representations of the interactions, rather than actual photos or still frames of the videoed data, to ensure participant anonymity.

3.1.3 Transcription Constraints

All formal notation systems can reify and distort or transform the emergent elements of everyday communication (Cicourel 1974). However, from the point of view of research it is important to have data in a form that can easily be referred to, and where units for analysis are clearly marked.

Signed language, the language of the Deaf, is transmitted soundlessly, exploiting the visual space between the speaker[4] and the addressee. It is received by the eye alone and, therefore, it must be capable of conveying all aspects of the world spoken of, in entirely visually accessible ways. One of the key differences between

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3 Line drawings throughout this thesis, except where acknowledged, are from Johnston (1989a) and used with the permission of the author.

4 'Speaker' and 'addressee' are conventional terms in discourse analysis and will be used throughout this thesis to refer to participant roles in discourse (signed or spoken).

a system using the visual as opposed to the vocal-auditory channel is that visual messages can produce multiple components within spatial dimensions which occur simultaneously. The fact that a signed language exploits the visual medium in such a way makes it difficult to represent accurately using current methods of transcription. Sign language systems, although they have all the qualities of spoken language, despite being more context-sensitive, do not have an abstract orthographic system to represent structure in a context-free way (Cicourel 1974). Thus, in studies of sign language, written language or symbolic representations are used as the passive vehicle for describing visual-manual representations (Deucher 1984).

Constraints imposed by using more traditional 'spoken' notation systems for transcription in visual-manual investigation have been noted by a number of authors (e.g., Deucher 1984; Littleton 1996; Miller 1994). Researchers working in the field of sign language have therefore developed a proliferation of notation systems for the transcription of signed language: phonology (e.g., Stokoe 1960); morphophonology (e.g., Mandel 1981); non-manual behaviours (e.g., Vogt-Svendon 1981); grammatical behaviours (e.g., Johnston 1991); and communicative behaviours (e.g., Jouison 1990). Numerous systems such as HamNoSys (Prillwitz, Siegmund, Leven, Zienert, Hanke & Henning 1990), Sutton Sign Writing (Sutton 1973, 1981) and derivates of the original Stokoe Notation (Stokoe 1960) have been created. However, all existing systems are essentially unilinear and characteristic of written systems of spoken language. In ordinary signed discourse phenomena occur that violate neat relationships found in neat single signs, phrases and sentences which cannot be accounted for using the current notation systems mentioned above (Miller 1994). Therefore, none of the current systems were useful for the present study, due to limitations in their ability to represent the interaction involved in the analysis of signed discourse behaviours.

The notational system used in this text was designed specifically for the purpose of analysing adult, visual-manual discourse (Littleton 1995,1996). It was constructed by adapting Jefferson's (1984) conversational analysis transcription conventions for spoken language, and Johnston's (1989a) conventions for transcribing Auslan, into a notation system capable of representing Auslan conversational behaviours for the purpose of discourse analysis (see Appendix 2, Notation Conventions from Littleton 1995, 1996).

As mentioned in the brief discussion of Auslan in Chapter 2, it is the combination of elements produced by hands, face, and body that construct a signed utterance. Therefore, fundamental to a sign's meaning, and the meaning of an utterance is *all* of the linguistic information produced. In order to transcribe a visual-manual language such as Auslan it is imperative to design a system of notation that adequately represents all aspects of the visual information being presented, if an effective and meaningful representation is to be constructed. In order to devise such a comprehensive system for Auslan, one of the major problems was to find a way to effectively incorporate the additional linguistic detail of non-manual elements as well as detail of manual elements (i.e., handshape).

In an attempt to incorporate all potential aspects of signed language the original format of presentation was based on the principle of a stave, that is the five lines and four spaces used in musical notation (cf. Littleton 1995,1996). This allowed for five separate lines of information to occur simultaneously. Each line was accorded either a manual or non-manual behaviour, or group of behaviours. The original format devised to analyse adult-adult signed discourse was then adapted for the purpose of presenting the aspects of infant/child-mother interactions of interest for the current examination.

The examples within the text use a range of notation conventions to represent visual and manual behaviours separately (see Table 3.4 for Notation Conventions). The format of the transcription notation illustrated below allows for three separate lines of information. Line 1. represents visual or eye gaze behaviours of the addressee. Line 2. represents linguistic and non-linguistic behaviours of the speaker. Line 3. is an English translation of the signed utterances in Line 2.

Line 1:	————————	eye gaze of *addressee*
Line 2:	GLOSS GLOSS	base signs
Line 3:	*gloss gloss gloss*	English translation[5]

Although the speaker/signer's manual behaviours (linguistic and non-linguistic behaviours) are represented by Lines 2. and 3., it is the visual behaviour of the *addressee* that is represented in Line 1. The reason for this lies in the fundamental difference of modality of reception and production of signed and spoken language.

One of the key differences between using a language system that relies on the visual channel rather than the vocal-auditory channel of spoken language is that the visual-manual utterance can only be received by the eyes alone. Therefore, being transmitted soundlessly, signed language is only accessible to another, visually. Imperative to an interaction between two interlocutors then is the visual attention of an addressee to the speaker. The linguistic and non-linguistic behaviours of the speaker are directed to gaining and maintaining the addressee's visual attention for the purposes of communication. To allow for the fact that signing can only be perceived in the context of a gazing recipient, the eye gaze of the addressee is important to the context: the visual behaviours of the addressee (Line 1.) are presented parallel to the manual behaviours of the speaker (Line 2.).

5 The English translation is one based upon idiomatic English, using words commonly associated with the sign, and is not claimed to be a 'literal' translation.

The format of each example used in the text is presented below. The format provides for each of the participants' utterances within an interaction to be represented. Further, the format allows for simultaneous behaviours of speaker and addressee to be viewed as sequential, and in context. Additionally, the age of the infant/child (i.e., years;months.weeks) is presented at the end of each example to the left, and to the right is presented the coding system used to identify the child, the taped session, and the utterances within the interaction.

(Example no.)

	eye gaze line
Speaker A	signed utterance
	English translation
	eye gaze line
Speaker B	signed utterance
	English translation

(age: years; months.weeks) (child: session: utterances)

Contextual information about the participants and the linguistic and non-linguistic behaviours within the interaction are discussed.

The following provides an illustration of an example as presented within this text:

(3.1)

	→ → → → ↓ ↓ ↓ ↓ ↓ _____
mother	((bangs hand 3x on wooden table)) point {onto toy car} WHAT
	What's that?
	_____
child	CAR$_{++}$
	_____
mother	(nod) CAR (smiles)
	Yes, it's a car.

(1;6.2) (2:1:1-3)

The above example illustrates an interaction between a mother and her child who is 1 year 6 months and 2 weeks of age. Mother and child are seated at the kitchen table playing with some toys. The mother initiates this interaction by banging her hand on the table three times. She does this to gain the attention of her child, who,

Table 3.4 Notation Conventions

Transcription	Meaning	Explanation / Example
GLOSS	name of sign	BOY = the sign 'boy'
G#L#O#S#S	sign formation	a sign which is formed slowly and/or formed very clearly
{gloss}	sign context	{to book} contextual information about the preceding sign i.e., this sign is being made toward a book
(gloss)	gesture	a description of some type of gesture e.g., (nod) to indicate 'yes'/approval/pleasure
((gloss))	action	a description of some type of action performed by the 'speaker'
GLOSS [GLOSS] GLOSS [GLOSS]	simultaneous/ overlapping signs	instances where one utterance overlaps another or two utterances occur simultaneously are marked by square brackets at the point at which overlap begins and ends
gloss	translation	English translation of Auslan
GLOSS (0.6)	pause	intervals in the stream of talk are timed in tenths of a second and inserted within parentheses, either with an utterance or between utterances
GLOSS @@@	laughter	laughter is represented by the symbol @. As laughter is able to co-occur with signing these symbols may be incorporated within the gloss, e.g., LOO@K@ point {to clown}
$GLOSS_{+}$	repetition of sign/ action	CAT_{+} indicates the sign is repeated once, CAT_{++} the sign is repeated twice
$\overline{\text{GLOSS}}$	eye gaze direction	indicates the eye gaze of the addressee is: —— toward the speaker – – – tracing the signs being made ↑ ↑ upward ↓ ↓ downward ← ← toward the left of the speaker → → toward the right of the speaker

as can by seen by the addressee's eye gaze line (Line 1.) above the mother's action (Line 2.), is looking to the right (e.g., → →) of her mother. The child looks downward (e.g., ↓↓), and then, with the end of the banging looks toward (e.g., ——) her mother's face. Once the mother has established that the visual attention of her child is gained, she then points directly onto a toy car which is on the table and asks her child *What's that?* The child's utterance shows not only the child's signed response of CAR, and that she repeats the sign twice (Line 2.), but also that her mother's visual attention is fixed on her as she responds (Line 1.). The final utterance is the mother confirming the child's utterance with a nod of 'yes', repeating the correct name of the item (i.e., CAR), and smiling at her child (Line 2.). The child is visually attending to her mother's response, as can be seen by the direction of her eye gaze toward her mother (Line 1.).

The transcription system used has been designed to allow aspects of the relevant parameters of the communicative behaviours of mother and child in the interactive episodes to be notated systematically. While there are linguistic and non-linguistic behaviours available to adult signers represented in the original notation system (cf. Littleton 1995, 1996) that may be important to certain aspects of signed language research, notation is a method of extracting from the raw data those aspects that are of interest to the research being undertaken. All systems are, to some degree, the product of an analysis, an interpretation that the developer of the transcription believes best represents the nature of the data. As far as possible care has been taken in the adapted notation system used in this research to allow a level of detail which represents the important features of the interactional work accomplished by mother and child, toward understanding the acquisition of conversational competence.

4

Protoconversation

> *(F)or conversation is clearly the prototypical kind of language usage, the form in which we are all first exposed to language - the matrix of language or language acquisition*
>
> (Levinson 1983)

Introduction

Language exists in order for human beings to communicate their needs and wants, categorise events and objects in their world, and engage in social interaction (Marschark 1995). The development of communicative competence is therefore necessary for a child to engage in 'successful' social interaction (Deucher 1984; Keenan & Schieffelin 1976; Schley 1991). Language socialisation is believed to begin with the initial social contact during infancy, that of 'mother'[1] and child (Erting et al. 1990; Schieffelin & Ochs 1986). There are rules governing social interaction that the infant needs to learn whilst acquiring the language skills to regulate communications. In order to communicate both these skills and rules, mothers, in the early stages of language development, make modifications to their speech when interacting with their infants. This modified style of speaking, termed 'infant talk' or 'motherese', has engendered considerable attention (Sachs 1977; Snow 1994;

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1 'Mother' will be used in this thesis in reference to the primary caretaker because, within the society in which this research has been conducted, the predominant caretaker is the mother. There is no intention to imply that mothers are always the predominant caretaker. In instances where fathers are involved in interaction text reference will indicate this, and may use 'parents' to refer to the primary caretaker.

Snow & Ferguson 1977). Mothers have been found to engage in very special kinds of 'conversation' with their infants, in which mothers accommodate to the asymmetric nature of being competent adult conversationalists interacting with their infants who have not yet developed language (Ellis & Wells 1980; McTear 1985; Marschark 1997). These conversation-like interactions, or 'protoconversations', between mother and child in early infancy are the means by which the child learns the rules and contexts of interpersonal communication (Bateson 1975; Bullowa 1977; Marschark 1997). Crucial to understanding how language is acquired is an understanding of how it is initially used (Bruner 1975). It is clear that development of communicative skills takes place within the context of interaction (McTear 1985:62). Protoconversations are an infant's first experience of language, of the level of meaning, social constraint and cultural norms which are necessary to achieve successful communicative interaction (Snow 1976; Widdowson 1976).

When thinking of communication there is a natural tendency to think of spoken language. What of visual-manual or signed language, whereby the mode of reception and production dictates a different type of communication? In a signed language content is carried not by speech and hearing, but by gesture and vision. Given that deaf[2] infants are unable to hear their mothers' voices, nor deaf mothers hear their infants, what is the nature of their earliest interactions?

In an attempt to answer these questions this chapter will examine the form and structure of protoconversation, review the available literature on deaf mother-infant interactions with a view to illuminating aspects of visual-manual conversations that may be inherent in signed language protoconversation, analyse examples of mother-infant interaction for instances of protoconversation, and discuss the implications of this analysis - particularly concentrating on interactive strategies dictated by the modes of reception and production of a signed language.

2 Throughout this thesis the use of the lower case 'd' for the word 'deaf' refers to audiological deafness.

4.1 Protoconversation

Conversation is an activity which requires two or more participants, each taking a turn at talk to jointly construct a successful communication (McTear 1985). However if one of the participants in a conversation is an infant, and has yet to develop language, how are the collaborative requirements of conversation accomplished? According to Bateson (1979), early mother-infant interactions occur in a pattern of more or less alternating, non-overlapping vocalisation, the mother speaking brief sentences and the infant responding with coos and murmurs, together producing a brief, joint performance similar to conversation. Coining the term 'protoconversation', Snow (1977:65), in an analysis of early mother-infant interaction, compared typical adult-adult conversation and typical mother-infant interaction sequences, and found them to be remarkably similar in structure.

(4.1.1)	A	Hi, how are things?
	B	Well, I got fired last week.
	A	Oh dear.
	B	But I got a new job.
	A	Oh yeah? Is it working out?
	B	Pretty well. It's hard work, but twice the salary of the other place.
	A	Hey, have they got an opening for me?

(Snow 1977:12)

(4.1.2)	Anne	(smiles)
	Mother	oh what a nice little smile
		yes, isn't that nice?
		there
		there's a nice little smile
	Anne	(burps)
	Mother	what a nice little wind as well
		yes, that's better, isn't it?
		yes
		yes
	Anne	(vocalises)
	Mother	there's a nice noise
	(0;3)	

(Snow 1977:12)

The previous examples, cited from Snow (1977), show that both adult-adult interaction (4.1.1) and mother-infant interaction (4.1.2) consist of: each participant looking at the other; one participant making a contribution at a time; each participant taking a turn at contributing; and each participant attending to the other's turn at talk. Each exemplifies a conversation. The difference is that the mother-infant interaction is 'conversation-like' because the infant sustains the interaction with certain behaviours, not speech, that are reliant on the mother's interpretation to be counted as contributions.

Example (4.1.2) is typical of protoconversation in that the infant contributes very little at this early age (i.e., 0;3). However, the mother sets the stage for the communication by treating the child as a communicating being (Snow 1976). This creates a context in which the infant is exposed to the general rules for communicative interaction. These rules have the chance to be developed by the child because each look, smile, or vocalisation by the child may be interpreted by the mother as communicating. The mother, if interacting with the infant at the time, is likely to respond with speech or with some type of attention. The infant learns that the reward of some type of contribution is a response from the mother. Mothers' responses are not random, but selective, focussing on those infant behaviours which are meaningful in adult communication (McTear 1985; Snow 1976). Furthermore, in these early conversation-like interactions the mothers co-ordinate their own behaviours with what the infant is doing. Mothers tend not to vocalise whilst the child is vocalising, but instead will pause and then respond to the 'talk', thus regulating their own contribution to that of their infants and creating the appearance of adult conversational turn-taking. They will also respond to the child's eye gaze by pointing in the direction their child is gazing, follow the child's existing eye gaze line and raise a topic based on what the child is looking at, giving the child the credence for the initiation of joint attention (Collis 1977; McTear 1985; Murphy & Messer 1977).

In essence, the mother displays the form and function of communication through her behaviour to the child prior to the infant's ability to actively participate, whilst at the same time attributing intentions to certain behaviours of the infant and interpreting the behaviours as meaningful contributions which follow the rules of communicative interaction successfully (Bonvillian, Orlansky & Folven 1990; McTear 1985; Widdowson 1976). The nature of the child's contributions change, of course, over time as the child develops, and the mother selectively responds to different behaviours as contributions, concurrent with such development. It is at the end of the prelingual period that the child, in order to participate in successful communication, must acquire the skills used to regulate conversation: initiation and maintenance of interactions, negotiation of turn-taking, and the ability to raise and change topics in conversation. All of these skills are acquired through learning in context from the mother's behaviour (Marschark 1997). Thus, this early period prior to language appears quite necessary to the child's understanding and development of conversational interaction.

4.2 Signed Protoconversation

In terms of research on the acquisition of signed language as a first language there are surprisingly few studies of this early developmental period, considering the belief that the first year of life is crucial to acquiring various aspects of language (Kyle & Woll 1985; Volterra & Erting 1990). During the last twenty years limited study has been focussed on communicative interactions between deaf mothers and their infants in an attempt to document the nature of early interactions in the visual-manual modality (Erting et al. 1990).

In an examination of American Sign Language (ASL), Maestas y Moores (1980) observed early parent-infant interaction between seven infants under 6 months of

age (hearing status unknown) and their profoundly deaf parents. She found that communicative interactions relied heavily on visual and physical contact with infants, and noted that "touch may well be the fundamental modality" for early interactions (Maestas y Moores 1980:5). Further, she observed that the deaf parents incorporated a number of strategies aimed at communicative effectiveness, some of which were modality specific and designed to get the infant to attend to visual-gestural communication. The parents: often signed while holding their infant; patted or tapped the infant's body to gain their visual attention; physically oriented the infant toward the visual-manual communication; and, adapted individual sign formation by signing on the infant's face or torso, placing the infant's hands on their own to form a sign, moulding the infant's fingers or hand(s) to form a sign, or forming the sign on a referent object. Other parents appeared to parallel previously reported strategies used by hearing parents with their infants, such as: positioning themselves to maximise the infant's attention; repeating lexical items; and stimulating a number of the infant's sensory modalities to maximise the communicative act (e.g., visual and tactile).

Launer (1982) collected data on the nature of mother-infant communication in ASL and studied four deaf mother-infant dyads. Launer (1982), like Maestas y Moores (1980), found that communicative strategies used by the mothers included: positioning their body within the infant's attentional range; adaptation of sign formation by signing on the infant's face or body; moulding the child's hands into specific shapes or guiding them through particular movements; and using one or more sensory modalities to stimulate the infant's senses to ensure maximal communication. Further, she reported that mothers accentuated the production of the signs by enlargement of the configuration, exaggeration of the movement, and adaptation of the location. Launer concluded that such strategies of signed communication by mothers "represent efforts to increase the clarity of sign production for young children" (1982:140).

Kantor (1982) collected data on two profoundly deaf mother-infant dyads (ages 1;0 and 2;8) over a period of 10 months, and Caselli (1983) collected data on three deaf mother-infant dyads (ages 0;8, 0;10, and 1;5) over varying periods from 2 months through to 12 months. Although particularly interested in the use of verb inflection and linguistic pointing behaviours, Kantor and Caselli likewise reported that mothers modified the form, location and basic movement of signs in order to simplify the language for their infants.

Examining deaf mother-infant interactions in British Sign Language (BSL) Harris, Clibben, Chasin and Tibbits (1989), observing two mother-infant pairs with deaf children aged between 0;7 and 0;10, comment that mothers actively seek and obtain an infant's attention prior to signing "within the child's pre-existing focus of attention" (1989:93). Similarly, Kyle and Ackerman (1987:14), in an examination of BSL mother-infant dyads (0;3, 0;5 and 0;10), found that mothers engaged "in a whole range of movement behaviours" aimed at simplifying the language, but noted that, as yet, they were unable to develop a way to analyse these movements and thus comment on their role in deaf mother-infant interactions.

More recently, Erting et al. (1990), interested in earliest communicative interaction between deaf mothers and their infants, examined eight mother-infant dyads (the infants were under 0;6). The authors found, in support of previous research, that deaf mothers modify the signs they use with their infants, often repeating the sign, signing slower, simplifying the sign formation, and changing the location and movement of signs to aid the infant. Further, mothers' communications with their infants involve stimulation of one or more modalities (e.g., visual, kinaesthetic), and engaging in strategies to ensure the infants' attention to the visual-manual components of the language.

There are therefore, although few in number, studies of deaf mothers interacting with infants in the early period. The above-mentioned literature shows that deaf mothers use special features and strategies in their communications with infants (Erting et al. 1990; Littleton 1998a; Maestas y Moores 1980). Deaf mothers appear to socialise their infants into the requirements of visual-manual language through interactions structured to communicate the necessary foundations for the acquisition of a signed language (Erting et al. 1990). Not surprisingly, deaf mothers rely upon the visual and physical modalities in order to maximise the communicative interactions with their infants (Maestas y Moores 1980; Wedell-Monnig & Lumley 1980). However, although these studies have examined the strategies and features in the deaf mother's input to the child, they have predominantly considered the language context established by the mothers (Kyle & Woll 1985). There is little or no mention of the infant's communicative behaviour, nor the mother's elicitation of, or response to such behaviours in this early period of mother-infant interaction. Neither do these studies mention the reciprocal nature of protoconversation.

4.3 Analysis of Auslan Protoconversation

This section will use data examples of infant-directed signed language, to examine the form of Auslan used by deaf mothers with their prelingual infants. It will examine mother-infant behaviours within early exchanges, to consider whether the signed language deaf mothers use to their deaf infants reflects proto forms of conventional conversational exchange. It will also consider the ways in which the separate behaviours of mother and infant are co-ordinated in this single co-operative social activity.

Early interactions between mothers engaging with their infants can best be described as conversational in nature (Snow 1977). Protoconversations are so called because they are, for the infant, the origin of the co-operative social activity of conversation. Mothers, however, play an integral role in the development and creation of these early conversations with their infants, as illustrated in the following example of a typical exchange:

(4.3.1)[3]

mother	← ← ← ← ← ← ← _____ ←
	((lays infant down on changing table)) BATH
	← ← ← ← ← _____
	((taps infant on chest 2x)) BATH point {on infant's chest}
	You're going to have a bath
	_____
	BATH {on infant's chest}
	You're going to have a bath
	↓ ↓ ↓__
infant	(vocalises)
	_____
mother	(nods, smiles)
	Yes,
	_____
infant	(gurgles)
	_____ _____
mother	('Oh' fac[e) nods BATH {on infant's chest} BATH]
	Oh really Yes you're going to have a bath , a bath
	_____
infant	[(smiles) (gurgles)]
(0;1.2)	(12:1:2-7)

In example (4.3.1) the infant is being prepared for bathing, the mother standing at the end of change table (in contact with the table) in front of the infant. She tells the infant that it is bath time, taps the infant on the chest twice and then begins the communication, signing BATH on the infant within the infant's own signing space in the correct place of articulation for the sign. The infant vocalises whilst the mother is removing its clothing. The mother responds with the equivalent of *yes*. The infant gurgles and the mother responds with an *Oh really* type utterance, and then informs the infant that, *yes*, she is *going to have a bath* - concurrent with this the infant smiles and gurgles.

3 The line above the text in the examples in Sections 4.3 and 4.4 represents the eye gaze line of the *addressee* throughout the discourse.

As in example (4.3.1) the mother's role in the structure of protoconversation is an important one. It is the mother who treats her infant's vocalisations and gurgles as intentional communications, as contributions by her infant to the conversation. She not only treats her infant's contributions as if they are actual messages, but also treats her infant's utterances as initiations and responds to them, which results in an alternating pattern of turns. Further, it appears that the mother follows promptly each of her infant's turns at talk with a response, and tends to avoid overlapping of utterances by not speaking whilst her infant is contributing. The mother, by her interpretations and actions, creates the above conversation with her infant. The resulting protoconversation is similar to adult conversation, with an alternating pattern of turns, a smooth exchange devoid of awkward pauses or gaps, and minimal overlapping talk (Elias & Broerse 1995; McTear 1985).

The role of the mother in structuring the conversational exchange with her infant is extremely important. Not only does she provide a support for the child by using utterances that provide a frame for the child's responses, but, more importantly, it is her contributions on behalf of the infant that keep the dialogue going (McTear 1985). The mother's contributions may take the form of actual rather than simply implied talk for the infant. In the above example the mother twice signs BATH within the infant's signing space on the infant's body (the correct place of articulation for this particular sign) (cf. Johnston 1989a). Previous research on deaf mother-infant interactions (e.g., Kantor 1982; Maestas y Moores 1980) has noted, without further explanation, that signing on the body of an infant is a commonly used strategy. It is possible that, at this early age, this is not simply a way of modelling the correct sign usage, but that it is used by the mother to represent the infant's turn[4] at talk - the infant 'saying' BATH. It seems that mothers both create

4 The term 'turn' is applied to a normally unbroken stretch of communicative behaviour which is a participant's contribution to a conversation.

and supply the prelingual infant's turns at talk, though, as stated by McTear (1985: 66) "one of her major achievements is to make it look as if it comes from the child".

An interesting point to note, contrary to previous findings (e.g., Harris et al. 1989; Reilly & Bellugi 1996), is that the mothers in these data begin signing to the infant from birth, and further appear to respond to their infant's vocalisations. It is probable that, in some instances, the mother responds to the infant's vocalisations because she is looking at the infant and is able to see the mouth movement (e.g., 4.3.1 above, and examples 4.3.2, and 4.3.3 following); whilst at other times the mother is aware of the sound because her body, or part of her body is in contact with an object (e.g., the change table in example 4.3.1) or the infant itself, and, as such, she is able to feel the child's verbal responses through sonics - the physical vibrations caused by the sound waves.

(4.3.2)

infant	(vocalises)
mother	((picks up doll and moves it into the infant's visual range))
	point {on doll} WHAT point {on doll} WHAT (0.7) *What's this?* *What's this?*
infant	(vocalises)
mother	DOLL point {on doll} DOLL point {on doll} (0.6) *This is a doll* *It's a doll*
	D#O#L#L {very slowly formed and articulated} (1.0) *D o l l*
infant	(vocalises)
mother	(smiles, nods) DOLL (nods, smiles) point {on doll 3x} *Yes it's a doll* *Yes a doll* *This is a doll, this, this*
	((waves doll's arm at infant))

(0;3) (12:2:8-13)

In example (4.3.2) the mother has just completed changing the infant's nappy. As the infant lies on the change table she vocalises - the mother picks up a doll and points on it within the visual range of the infant.

As in Maestas y Moore's (1980) findings on deaf parent-infant interactions, mothers in this study monitor sounds by placing their hands on the infant's torso to feel its vocalisations. This also shows that the infant clearly plays a role in these early interactions. The infant's vocalisations (even though the mother cannot hear them) are felt, or seen, and taken as initiations and cues for a response. This example does not mean that early, deaf mother-infant interactions require vocal communication; this is simply an example to show that deaf mothers are able to detect and respond to the vocal cues from their children. The mother asks the infant what the object is, and proceeds to name the object to the infant. The mother signs to the child that this is a DOLL (see Figure 4.1 following), points to the referent with her fingertip resting on the referent, and then repeats the sign DOLL and points on it again. She then grasps the arm of the doll and waves it at the infant. The mother then finishes dressing the infant.

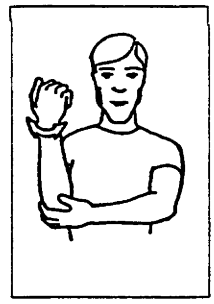

Figure 4.1 DOLL

The previous sequence demonstrates several points common to protoconversation. First of all it provides quite clear examples of signed motherese. When interacting with their infants mothers often: use signs at a relatively slower tempo (e.g., D#O#L#L is both slowly formed and produced); frequently repeat the same sign and a sign movement (e.g., DOLL; WHAT); and, sign in contact with a referent object (e.g., the repetition of the 'pointing sign' on the doll) (cf. Maestas y Moores 1980; Masataka 1992). Secondly, the sequence provides an example of the behaviour and participation of the infant in protoconversation. Although the

behaviour of the infant is often given meaning by the mother's interpretation, the mother's response is similarly influenced by the infant. For example, in the above conversation it is the infant who initiates the interaction; it vocalises, the mother treats this as a contribution, responds with her utterance and then pauses (e.g., for various durations of 0.7, 0.6 and 0.1 of a second) - giving the infant a chance to take a turn. The infant again vocalises and the mother responds, pauses, and the conversation proceeds.

Interestingly, it appeared on examination of these data that crying on the part of the infant was not treated by the mother as either an initiation or response (i.e. the mother did not reply to such behaviour). This is not to say the crying behaviour was ignored, instead of replying the mother would soothe the infant, find the cause of the distress and comfort the infant. This response to crying shows that mothers do not select just any aspects of their infant's behaviour and treat it as a contribution to the conversation. They choose and respond selectively to certain behaviours, such as gurgles and smiles, and co-ordinate their own behaviours with the infant's to give the appearance of a conversation (McTear 1985; Snow 1976).

The third point demonstrated by the above example is the importance of 'joint reference' to protoconversational structure. Communication hinges on an exchange of information, and in order to participate competently in a conversation children must develop the ability to refer to the objects and events they wish to talk about (Baldwin 1993; Woll, Kyle & Deuchar 1981). In terms of protoconversation, 'joint reference' occurs when, for example, the mother and infant are attending to the same thing (e.g., the doll in the above example) and it becomes the referent for their discussion. It has been shown that joint attention underlies communication, and that, although infants do not possess an adult ability to establish joint attention, recurrent modelling on the part of the parent aids the infant in determining where the adult is attending and, as such, the referent of the utterance (cf. Prezbindowski,

Adamson & Lederberg 1998; Tomasello & Farrer 1986). In order to aid the infant the mother will often focus her attention on an object the infant is already attending to, or bring an object into the already existing joint attentional sphere (e.g., the doll), and then begin a joint discussion about that referent. A necessary starting point, therefore, for the infant's language development is the ability to use joint attention and reference as necessary for communication.

Additionally, the joint reference required for a communicative exchange exemplifies an important aspect of signed language interaction. As evident in the above example (4.3.2), and throughout these data, deaf mothers resist signing to their child unless they have a joint visual contact with the infant. Signed language is visual-manual; that means it is produced by the hands, face and body, and perceived by the eyes. Signed conversation requires visual attention to the speaker - quite simply, if a deaf participant is not 'looking' they are not 'listening'. The mothers in these data visually monitored their infants, signed within their infants' visual range, and signed only when their infants were visually attending - tacit to their children's linguistic and communicative needs is the development of the ability to establish joint visual attention and reference (Marschark 1997; Swisher 1991).

The interaction in (4.3.3) on the facing page, exemplifies the nature of maternal responses to infants' behaviours. Mothers show a marked sensitivity to their infant's intensity and quality of effort. That is, something as simple as a smile takes great concentration and effort on the part of the infant, an arm or head or mouth movement a great deal more. It is not uncommon for mothers to treat infants' mouth movements as attempts to talk. As in the above example, the mother may say *are you talking?*, or *what are you trying to say?*, or *you have a lot to say.* Generally the mother comments immediately after the infant's mouth movements cease - and in this way the mother's response constitutes a reply to the infant's talk (Trevarthen 1977).

(4.3.3)

infant	((lying on infant change table)) (vocalises)
mother	TALKING TALKING{near to infant's face} (nods) *You're talking* *Yes, you're talking*
infant	(gurgles, vocalises, smiles)
mother	(nods) (0.3) *Yes*
infant	(vocalises, gurgles)
mother	point {to infant} TALKING (0.6) (nods) point {to infant} TALKING *You're talking* *Yes you're talking*
	(smiles) [(nods) point {to infant} TALKING] *mm* *Yes you're talking*
infant	[((moves her head in 2 or 3 slight movements))]
mother	((finishes fastening nappy)) point {directly onto nappy} *That better?*
	BETTER +(0.3) +(0.6) *Better? Better?*
infant	(opens mouth, protrudes tongue slightly) ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑
mother	(smiles, nods) ((looks down to finish dressing infant))

(0;4.1) (12:3:23-31)

In example (4.3.3), the mother is changing her infant's nappy. The infant lies on a change table directly in front of the mother. While the mother is changing the infant's nappy the infant vocalises, to which the mother responds with the comment that the infant is talking. This occurs twice more, and when the mother finishes changing the infant's nappy she talks with her infant about how much better the infant must feel now that her nappy is changed. The infant opens her mouth and sticks her tongue out slightly. The mother nods and smiles and then directs her eye gaze toward the job of fastening the infant's outer clothes.

Talk about talk is a common subject for early mother-infant interactions. It is almost as though the mother represents the infant as 'talking' to reward herself for all her patience and hard work. Mothers will often follow the child's lead when deciding what topic to talk about (Snow 1977). In fact, the majority of a mother's

contributions to protoconversation are essentially related in content to the infant's activities or direction of attention, or are attempts to elicit some type of response from the child. The behaviour is referred to specifically, either by naming as above (i.e., *talking*), or by using relatively formulaic content-related responses, such as *that's better* about the infant's clean nappy, or *pardon you* to a burp.

It has further been found that mothers use a high frequency of questions in these early conversations, that function as devices to pass on a turn to their infants (McTear 1985; Snow 1976). Mothers also often supply the answer to their own question, in order to maintain the question-answer structure of turns in the conversation. In the previous example (4.3.3), the mother asks the infant a number of questions, for example *are you talking?*, and *better?* When the infant fails to produce a behaviour, within a given time (i.e., between 0.3 and 0.6 of a second), which the mother can interpret satisfactorily as a contribution she then responds with *yes, you're talking*, and *better*, respectively. The mother has not only aided her infant in this reply, but avoided a breakdown in the conversational exchange by supplying the infant's answer - that is, by taking her infant's turn at talk.

Conversation-repair is another essential feature of mothers' contributions to early conversations. Mothers not only fill in for the infant by taking the infant's turn, but also will structure their utterances so that a minor behaviour on the infant's part (e.g., a head or mouth movement) can be treated as a reply. Mothers will also interpret the majority of an infant's behaviour on a par with an adult's behaviour, that is, as both intended and intentional. It is therefore the mother's sensitivity to the unequal nature of the conversation, the infant's inability to talk, and her adult language skill that often lead her to allow the infant to dominate the conversation as she follows the infant's lead in deciding what to talk about.

(4.3.4)

infant ((sitting on floor staring down at yellow bird toy))
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓

mother ((taps infant's arm 3x; taps infant's leg 4x; taps infant's
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
shoulder 7x takes hold infant's face between flat hands
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
and tries to gently turn his face toward her own))

infant ((resists mother's movement of head, reaches toward her
mother's hand to get her to move it, continues to look at
toy bird; reaches for toy bird))

mother ((picks up toy bird; moves it slowly upward to just below
her face; displays bird just below her face in L/H))
BIG BIRD + + ((moves bird toward infant's face taps
It's big bird bird bird
(pecks) infant on nose with bird 2x; withdraws bird))

infant ((reaches toward bird))

mother ((moves bird toward infant's face and again taps (pecks)
infant on nose 3x and draws the toy away))

infant ((reaches for bird)) @ @ @
↓ ↓ ↓ ↓

mother LAUGH ((taps infant on the nose with toy bird; allows
You're laughing
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
infant to grasp toy bird)) (smiles) GOOD PLAY
Yes, it's a good game

infant (smiles)

(0;6) (7:3:1-9)

In example (4.3.4), mother and infant are on the floor, playing. The mother is seated, facing her infant seated opposite. The infant's eye gaze is fixed on a yellow toy bird. The mother attempts to gain her infant's attention by tapping his arm, then his leg and then his shoulder. She then attempts to gently turn the infant's head toward herself, which he resists. The mother then picks up the toy, which is the focus of the infant's attention, and moves it so that it is between them, and, once mutual visual attention is achieved, she begins to communicate about the toy. Mother then initiates a game with the toy resulting in play between the two.

Example (4.3.4) demonstrates clearly, as noted previously, that a fundamental tenet of conversation is the necessity of gaining the attention of the person you wish to talk with, and directing their attention to something you may wish to talk about. It has been shown quite clearly that, in this early period, mothers: will attempt to direct their infant's attention toward a new focus; may maintain or increase their infant's attention toward an object of current interest; and, will use talk to facilitate sharing an object focus with their infant (cf. Adamson & Bakeman 1984). Deaf mother-infant interactions certainly reflect such efforts; however, unlike spoken language, signed communication requires, as previously noted, that joint visual attention be achieved. As such, the process of gaining and directing attention in a visual-manual language is an essential skill that children must learn in order to successfully initiate conversation (see Chapter 6: Initiation).

Previous research (e.g., Harris, Jones & Grant 1983; Littleton 1998a; Marschark 1997) has shown that deaf mothers who want to gain their infant's attention will: pat or tap the infant's body, or an object in contact with the infant that can conduct vibrations (e.g., a highchair tray); sign within the infant's existing visual focus; and, either reorient the infant (e.g., moving the infant's head) or themselves, or part of their body within the child's existing focus of attention. Further, it has been found that deaf mothers will employ strategies such as pointing on or at a referent, showing or displaying an object as a referent, and signing within the infant's visual attention, as means to direct their infant's attention toward the communication. The mother in example (4.3.4) above, repeatedly engages in a number of these strategies to gain, maintain and direct her infant's attention in order to converse. Over time the use of these strategies by the mother will teach the infant to attend visually to cues in the environment, and model the form and function of the strategies needed to achieve mutual attention and direction, in order to engage in successful communication (Littleton 1998a, 2000; Marschark 1997).

The structure of the protoconversation above is that of a game, and provides further illustration of a fundamental aspect of early interactions. Games provide an environment in which the infant may learn a central tenet of conversation - that particular behaviours receive predictable responses (Bruner 1977; McTear 1985). The earliest examples of this learning occur in games by which the child learns not only to take turns, but that each action has both an appropriate place in the game and a predictable response (e.g., peek-a-boo; round-and-round the garden). In example (4.3.4) above, an early illustration of this would be the infant's laughter as a response to the action of the bird 'pecking' his nose. Over time, the infant learns the rules of the game and will anticipate the sequence, as is often seen in the game of 'This Little Piggie' in the way children will laugh in anticipation of the tickle at the end of the rhyme. These games engendered within early protoconversations facilitate the child coming to understand and learn the principles of conversation (McTear 1985; Woll et al. 1981).

(4.3.5)

	← ← _____
mother	point {on picture in book}
	Look at this.
	_____
infant	((grasps at the book))
	_____ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
mother	{on picture} LION {formed on the book surface} LION
	This is a lion. *It's a lion.*
	_ _ _ _ ↓ ↓ ↓ ↓ ↓ _____
	LION LION {formed on the infant's head}
	Lion *Lion* *It's a lion.*
	_____
	point {on picture in book}
	This is a lion.

(0;8) (12:4:54-56)

In example (4.3.5) the mother and infant are seated on the floor, playing. The mother has both arms around the infant who is seated on her lap, and both mother and infant are facing forward. The mother is holding a picture book in front of the infant and points onto the book to direct the infant's attention toward a picture of a lion. The infant grasps at the book and the mother moves the book further out, and again directs the infant's attention toward the picture of the lion. Within the signing space in front of the infant's face the mother talks with the infant about the picture. Mother and infant then continue looking at the book.

The previous example (4.3.5) illustrates and extends the notion discussed in example (4.3.2) of the importance of joint attention for the deaf child. Joint attention, as stressed by Snow (1989), is not simply defined by maternal attention to the child's object of attention, but by the mutual recognition that both the mother and the child are attending to the same object or action. Unlike the hearing child - who may use auditory and visual attention, working in a complementary relationship, to allow simultaneous attention to both an object and a commentary about the object - the deaf child must focus, with only visual attention, to the object and the visual or signed commentary about it. Due to the fact that the deaf child may use only the visual channel for both tasks, the child needs to give visual attention sequentially to each - the object then the comment, or vice-versa (Swisher 1991).

In this example (4.3.5) the child has had to shift visual attention back and forth between the picture book and the mother's signed comment. Initially, the mother directs the child's visual attention to the picture by pointing directly onto the picture. In this way the mother indexes the picture in the book by touching it directly, then, by forming the related sign directly onto the picture, she relates the sign form directly to its image base (i.e., the picture). The mother then moves her signing to the child's head, away from the image base, and produces the sign in citation form (i.e., in the correct manner and place of articulation). As pointed out by Gregory and Barlow (1986), in an examination of deaf dyads and picture book reading, there are potential difficulties for the deaf child in understanding and learning to divide visual attention between the object and parent. It appears that the mother in this example, by her actions of pointing and signing on the book's surface, limits the context to the immediate task, and, in doing so, minimises these difficulties.

According to Gallaway and Woll (1994), the deaf mother is faced not only with the task of gaining attention to give information, but also, simultaneously, with maintaining a link between the information and the object or task. In contrast, a hearing mother and child can simultaneously attend to both the information and object or task. Thus, the deaf mother actively directs the deaf child's visual attention by marking the target referent in a number of ways, for example by tactile (e.g., touching, example 4.3.5 above) or physical cues (e.g., shaking, example 4.3.6 below). This cueing or marking is used as an effective procedure for securing visual attention and establishing joint attention.

Concurrently, by bringing the sign in, or incorporating signs into a joint activity, the deaf mother teaches the child to divide attention between the activity and what is occurring on her face and hands. Once the child learns to look frequently toward the mother she can resume signing in the normal location. Further, once the child understands the need to visually monitor the mother during such activities the opportunities greatly increase for the mothers to incorporate sign within a joint activity, and this in turn provides greater opportunity for the child to relate signs to their referents. The development of this attention-switching strategy is imperative for the deaf child's need to perceive both linguistic and environmental information through the visual channel (Harris et al. 1989). Unlike the hearing mother and child, a deaf mother's comments cannot be overlaid onto the joint reference and be perceived by her deaf child: the deaf mother's comments must either precede, or follow the deaf child's visual attention to the object or event being commented upon, in order to be 'heard' (Ackerman, Kyle, Woll & Ezra 1990).

The deaf child, in order to develop perceptually appropriate abilities for communication, must learn that the eyes must do 'double-duty' to gain linguistic input and information. Deaf mothers in these data employed a number of strategies that appeared to facilitate their child's development of visual attention,

such as: close visual monitoring of the child's visual attention; waiting for the child to visually orient prior to signing; connecting a signed communication with its image base or referent; and, particularly, using the 'signs under the nose' approach of reaching into the child's line of sight to achieve communication - all of which provide a model for the children of the importance of visually attending to both the linguistic and non-linguistic messages about the environment.

(4.3.6)

mother ((hands infant plastic soft drink bottle filled with beads))
point {on infant's chest} ((draws point hand back a little))
You
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
point {to infant} SHAKE ++++ ((mother grasps infant's
You shake it *Shake, shake, shake, shake*
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
hands and bottle and shakes the bottle up and down 4x))

infant ((moves his R/H out from under his mother's and puts it
on top of the sideways bottle))

↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
mother ((shakes bottle 3x leans forward into infant's eye gaze line))
GOOD FEEL ((shakes bottle)) FEEL {on infant's chest}
Feels good *You feel it*
↓ ↓ ↓ ↓ ↓
((shakes bottle repeatedly))

(0;10) (10:3:20-22)

In example (4.3.6), mother and infant are on the floor, playing. The mother is facing the infant, seated opposite, facing her. The mother gives the infant a plastic soft drink bottle that has been filled with coloured wooden beads. She places it sideways into the infant's hands. The mother then signs, telling her infant to shake the bottle. She then places her hands over her infant's hands on the bottle and shakes the bottle up and down. The infant pulls his right hand out from beneath his mother's and places it on the flat surface of the bottle, whilst his mother continues to shake the bottle up and down. The mother leans forward so that her face is close to the infant and the action of shaking the bottle, and comments on the action. The mother then continues to aid the infant in shaking the bottle.

Example (4.3.6) facing, is illustrative of the point made by Gallaway and Woll (1994) pertaining to deaf mothers' exploitation of both the tactile and kinaesthetic channels in order to gain and hold attention of their deaf infants. The mother in the example shakes a plastic bottle full of brightly coloured beads to stimulate not only the visual channel, but also the tactile and kinaesthetic channels of the child - encouraging her child to feel the vibrations caused by the beads bouncing within the plastic bottle. Wedell-Monnig and Lumley (1980) point out that deaf infants are not only responsive to visual stimulation, but also to vibratory stimulation. Similarly, deaf parents frame their communicative acts to stimulate a number of sensory modalities at once - visual, tactile and kinaesthetic sensory modalities are exploited by the parents to encourage children to attend to spatial communication, that is, language in physical space (Maestas y Moores 1980).

The mother in the above example (4.3.6) uses the vibrating beads within the bottle to gain and maintain her infant's attention, communicating with the child to feel the sensation, actively encouraging him by placing his hands onto the bottle, and then discussing the feeling that the beads make and that this sensation feels good. A further instance in these data of a mother framing communication to maximise visual attention through tactile and kinaesthetic stimulus is found in example (4.3.5). The mother is seated with the infant on her lap, the child's back is to the mother and the mother's arms are around the child. According to Maestas y Moores (1980), deaf parents often sign with both arms around the infant while the infant sits on the parent's lap, or beside the parent. She then explains that the orientation of the signer's hand may then be outward, as though addressing another person across the room, or the parent may rotate the hand or hands inward and address the child with the hands oriented as another would normally see them. The infant receives not only visual input from the hand configuration, but also tactile and kinaesthetic information from the accompanying bodily movements of the signer's arms, torso and legs.

Mothers in these data seem frequently to position themselves to ensure their child's attention. In examples (4.3.4) and (4.3.6) the mothers are seated close to their child and continually move within their child's range of visual attention, often touching the child or referent, and using the referent in order to maximise visual attention to the communications about it (e.g., touching the yellow toy bird to the child's nose in example 4.3.4); shaking the bead bottle and encouraging the child to touch it in example 4.3.6). Further, in example (4.3.5) the mother positions herself behind the infant with the book (i.e., the referent) placed on the child's lap, then reaches her hands around so that the child receives the signed communication about the referent directly onto or over the referent. In all the above examples the mother's position not only maximises the child's visual attention, but stimulates the child's tactile and kinaesthetic senses - all of which are centred around the communication.

An interesting point is that in game playing, hearing mothers often make use of sounds such as the ting of a bell or the rattle of blocks to draw the hearing child's attention to something the mother wishes to talk about. It appears that the deaf mothers also play 'sound games', or, more appropriately, 'visual and tactile games', such as the yellow toy bird game (e.g, 4.3.4) or the beads in the bottle game (e.g, 4.3.6), in order to draw the child's attention to the communication itself and to the structure of the acts in which communication is taking place. The use of games by deaf parents, as with hearing parents, is designed to initiate and sustain interaction with children, and the particular games facilitate the children's understanding of the world around them. The world for deaf children is dependent upon visual, tactile and kinaesthetic channels, and so the games are designed to facilitate the children's world with colourful, moving rattling beads and pecking birds.

In an examination of early interaction and language development Gallaway and Woll (1994) mention that games, such as the game with the yellow toy bird (e.g.,

4.3.4) or the beads in the bottle-game (e.g., 4.3.6), are a normal type of prelinguistic interaction played by deaf mothers with their deaf infants. According to Bruner (1977), such games or play are of central importance in providing a tension-free context for numerous joint activities between mother and infant. Games provide opportunities for the child to gain and practise ability in interacting with others, mastering rules and conventions, and dealing with the social environment. Also, in a pleasurable way the child will be endowed, via an adult model provided by the mother, with knowledge of how and when to use certain forms, and the function of such forms in social interaction - particularly communicative interactions.

4.4 Discussion

An infant's first experience of communicative interactions comes in the form of conversation-like interactions or, more simply, protoconversations (Snow 1976). Protoconversations are important in developing early language skills because they provide the origin for the development of a child's ability to use language as a means by which to participate in conversation. It is important to remember that the origins of conversation can be found in early infancy in the prelinguistic stage - before the child has even begun to use language (McTear 1985). In these early interactions infants learn to take turns, respond to another's turns, and expect predictable responses to their own behaviours. In essence, infants learn the fundamentals necessary in order to be a participant in a conversational exchange.

This preliminary examination shows that deaf mothers, similar to hearing mothers, engage in protoconversation with their infants that models conversation, and, at the same time, models the nature of the communication system which the child must learn. Deaf mothers in these data appear to select certain aspects of their infant's

behaviour (e.g., smiles, burps, and at times vocalising, example 4.4.1 below) and respond as if these were intentional and appropriate initiations and responses. The mothers time their own behaviours to co-ordinate with the infants' by, avoiding overlapping in their utterances and their infants' contributions, giving prompt responses following an infant's perceived contribution, and pausing to allow for the infant's turn at talk. Further, deaf mothers in these data use motherese in utterances to their infants - signing at a relatively slower speed (e.g., D#O#L#L, example 4.4.1 below), frequent repetition of the same sign, and signing in contact with the referent of the utterance. As with hearing mothers, the maternal skills of the deaf mothers in these data, in maintaining the appearance of a conversational exchange when no real conversation is actually taking place, are apparent by the alternating pattern of turns and smooth exchanges which they engineer to create a protoconversation.

(4.4.1)

infant	(vocalises)
mother	((picks up doll and moves it into the infant's visual range))
	point {on doll} WHAT point {on doll} WHAT (0.7) *What's this? What's this?*
infant	(vocalises)
mother	DOLL point {on doll} DOLL point {on doll} (0.6) *This is a doll It's a doll*
	D#O#L#L {very slowly formed and articulated} (1.0) *D o l l*
infant	(vocalises)
mother	(smiles, nods) DOLL (nods, smiles) point {on doll 3x} *Yes it's a doll Yes a doll This is a doll, this, this*
	((waves doll's arm at infant))

(0;3) (12:2:8-13)

As found with hearing mothers' utterances, deaf mothers' utterances in these data are concerned with the child's immediate environment. Particularly, the mothers' utterances often concern objects on which a child is focussing attention and actions.

In example (4.4.2) below, the mother is trying to gain the infant's attention. When a number of attention-getting strategies are unsuccessful she uses the infant's focus of attention on the yellow toy bird to draw the child into a communicative routine - she uses the child's existing focus of attention as the focus of comment (e.g., BIG BIRD).

(4.4.2)

infant ((sitting on floor staring down at yellow bird toy))
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓

mother ((taps infant's arm 3x; taps infant's leg 4x; taps infant's
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
shoulder 7x takes hold infant's face between flat hands
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
and tries to gently turn his face toward her own))

infant ((resists mother's movement of head, reaches toward her
mother's hand to get her to move it, continues to look at
toy bird; reaches for toy bird))

mother ((picks up toy bird; moves it slowly upward to just below
her face; displays bird just below her face in L/H))

BIG BIRD + + ((moves bird toward infant's face taps
It's big bird bird bird
(pecks) infant on nose with bird 2x; withdraws bird))

infant ((reaches toward bird))

mother ((moves bird toward infant's face and again taps (pecks)
infant on nose 3x and draws the toy away))

infant ((reaches for bird)) @ @ @
↓ ↓ ↓ ↓

mother LAUGH ((taps infant on the nose with toy bird; allows
You're laughing
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
infant to grasp toy bird)) (smiles) GOOD PLAY
Yes, it's a good game

infant (smiles)

(0;6) (7:3:1-9)

In a study of early vocabulary development in hearing interactions, Akhtar, Dunham and Dunham (1991) note that sharing the child's focus of attention may be more important than the actual structure of pragmatic intent of a mother's utterance. Further, the literature on normal acquisition has emphasised the importance of the mother providing semantically contingent input to the child's focus (Swisher 1991). As pointed out by Akhtar et al. (1991), much of a child's early language acquisition may take place during periods of joint attention, because it is during these times that the child is most attentive and probably more motivated to attend to the mother's speech. Also, as Bruner (1985) and Prezbindowski et al. (1998) have indicated, periods of joint attention aid the infant in understanding the focus of the mother's attention, and thus make the referent of a communication more salient to the child.

A further similarity found was that both deaf and hearing mothers used play/games to facilitate their children's understanding of social interactions. As pointed out by both Bruner (1975) and Bullowa (1975), play centred around objects in the environment provides a social context for learning about the environment. Deaf mothers in these data use play, such as waving the doll's arm (e.g., 4.4.1 above), the bird game (e.g., 4.4.2 above) and picture books (e.g., 4.4.3 below), to teach their children about the social rules and fundamentals of their language.

(4.4.3)

	← ← _____
mother	point {on picture in book}
	Look at this.
	_____
infant	((grasps at the book))
	_____ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
mother	{on picture} LION {formed on the book surface} LION
	This is a lion. *It's a lion.*
	_ _ _ _ ↓ ↓ ↓ ↓ ↓ _____
	LION LION {formed on the infant's head}
	Lion *Lion* *It's a lion.*
	_____
	point {on picture in book}
	This is a lion.

(0;8) (12:4:54-56)

Unlike hearing interactions, where both the auditory and visual channels are available to the mother to gain and direct attention, deaf mother-infant interactions are reliant upon only the visual channel. The deaf child must learn that both the language and social context for that language must be visually attended to. This requires the child to learn to divide attention between language and the relevant context, and to develop visually directional focus. Thus, similar to previous findings on deaf mother-infant interaction (e.g., Gallaway & Woll 1994; Maestas y Moores 1980; Marschark 1997), deaf mothers in these data show great awareness of the visual communication needs of their deaf children: they resist signing to their infants until they have established mutual visual attention; they commonly move their hands and faces within the child's existing focus of attention; and, they stimulate multiple senses of their child (e.g., visual, tactile and kinaesthetic) in order to gain and direct their attention.

The deaf child must learn that co-ordination of so much information in the visual channel is reliant upon the establishment of a joint focus of visual attention. Visual reception requires a directional focus in order to master co-ordination of both linguistic and non-linguistic information in the visual channel (Gallaway & Woll 1994; Marschark et al. 1997). Deaf mothers need to engender within the child the ability to attend simultaneously to both a referent and a signed comment about it. They must also ensure through various strategies (e.g., signing only when the child is looking at them; signing within the child's existing focus of attention) that the child learns that their attention may need to be given sequentially - first to the referent and then the communication, or the reverse.

In general, the deaf mothers' behaviours during interaction with their infants in these data appear to provide models of the form and function of signed language which socialise the child to the visual nature of signed language, particularly

toward an understanding of the need for joint visual attention in order to successfully initiate and sustain conversation. All of this establishes important groundwork for social and language development by providing for the children the fundamental behaviour patterns for discovering their language and its appropriate use (Blount & Kempton 1976).

It appears from this initial examination of deaf mother-infant interactions that any differences between spoken and signed protoconversation are an artefact of the different modes of production and reception of each language. Visual-manual languages necessitate greater reliance on the visual channel, and, as such, the deaf mother must place emphasis on visual monitoring of her infant, joint visual attention and direction, attentional switching, and visual, tactile and kinaesthetic ways of gaining and directing visual attention, in order to initiate and maintain communicative interaction. This analysis illustrates that, regardless of the specific form of the language, protoconversation is the means by which mothers fulfil the need to communicate with their infant. Deaf mothers and hearing mothers alike are driven by the same imperative; the need to communicate the form and function of the language to their infant in order for the child to develop the social language skills entailed in the mutual exchange of information about people, places and things ~ the art of communication.

5

Motherese

> *The mother - leads the infant step by step to higher levels of language; she leads him into language, and into the world picture it embodies (her world-picture, because it is her language; and beyond this, the world-picture of the culture she belongs to).*
>
> (Sacks 1991)

Introduction

One of the fundamental building blocks of early development is thought to be face-to-face interactions between mother and infant (Bloom, Russell & Wassenberg 1987). The content of these early interactions has been found to be very different to that of adult-adult interactions, in several ways. Adults' speech to young children exhibits higher pitch levels and exaggerated intonation contours, and appears to consist of shorter, and structurally simpler, utterances than speech addressed to adults. Considerable attention has been focussed on this modified style of language used by adults with infants and young children (cf. Cooper & Aslin 1990; Papousek, Papousek & Bornstein 1985 Sachs 1977; Snow & Ferguson 1977). The linguistic adaptations in this style of speech, referred to as 'baby-talk' or, more commonly, 'motherese'[1], are believed to have potential significance for a child's language development (Hampson & Nelson 1993; McTear 1985).

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1 'Motherese' is a term used to describe a style of speech used by adults with infants and young children. 'Motherese' will be used in this thesis as a blanket term to represent the talk of all adults and primary caretakers, both male and female.

Research on the structure of modified language directed toward young children has consistently found mothers' speech to be syntactically and morphologically simplified, and "unswervingly grammatical" (Newport et al. 1977: 121). Additional research has further shown that motherese uses short, simple sentences with greater repetition and redundancy than talk directed at adults (Murray, Johnson & Peters 1990; Reilly & Bellugi 1996; Snow & Ferguson 1977). However, the interpretations proposed of the purpose and function of motherese have varied. One proposal is that variations found in the prosodic and paralinguistic features of motherese are primarily to convey affect in an attempt to simply attract and maintain a child's attention (Brown 1973). Another proposal is that modification of speech by parents is a careful calibration of input to accommodate a child's syntactic development (Moerk 1976). A further proposal is that such modification may function predominantly as a means of directing a child's attention to speech as an activity. There is also the proposal that motherese functions as the means by which to relate speech to the environment in a meaningful way (Blount & Kempton 1976). However, the strongest position is simply that motherese is intuitive, and arises from the needs of the mother to communicate with her child (cf. Papousek & Papousek 1987; Reilly & Bellugi 1996; Snow 1977).

Although the phenomenon of motherese has been much written about in spoken language research, what of language which has no spoken component but is reliant on a visual-manual channel? The ubiquitous nature of motherese in spoken language poses the possibility that the phenomenon may be a general feature of all languages. Initial research into the phenomenon of motherese in visual-manual or signed languages have found features in deaf mothers' speech to their deaf infants analogous to those found in spoken motherese interactions, such as repetition, redundancy and simplicity (Maestas y Moores 1980; Woll et al. 1988). However, consistent with the modality differences between spoken and signed language production and reception, there are a number of features present in spoken

motherese not present in signed motherese, and vice-versa (Masataka 1992; Reilly & Bellugi 1996).

This chapter will be a preliminary examination of the existence, form and function of signed motherese in Auslan. Initially, it will present a brief overview of the research on spoken motherese, followed by a review of the limited literature on signed motherese. Following this, analyses of examples of signed motherese found in deaf mother-deaf infant interactions in Auslan will be discussed. In particular, the chapter will concentrate on showing the existence of motherese in a signed language, its form and function in Auslan, and language and modality specific differences and similarities that may be found in signed and spoken motherese.

5.1 Spoken Language Motherese

Research into the phenomenon of motherese has generally found that child-directed speech has regular features which mark it as appropriate for young children, and distinctly different from adult-directed speech (Blount & Kempton 1976). Linguistically, motherese has been found to include fewer words per utterance, greater repetition and expansion of utterances, and use of short, simple sentences for decreased structural complexity (Akhtar et al. 1991; Masataka 1992; Snow 1977). Prosodic modifications have been found to include higher pitch, wider intonation contours, slower tempo, and an increase of emphatic stress (cf. Blount & Kempton 1976; Garnica 1977; Newport et al. 1977). Motherese has also been found to have a special lexicon of baby-talk words which show predictable phonological simplification and deviation from adult words (Ferguson 1977; Snow). Further, examination of discourse structures has shown motherese to have a higher frequency of interrogatives, greater fluency of speech production, and increased duration and frequency of pauses (Blount & Kempton 1976; Snow 1977).

It is very clear from the research that mothers tend to modify their speech in distinctive ways when interacting with young children. Spoken motherese uses both prosodic and paralinguistic features to attract attention, initiate interaction, and sustain conversation with young children (Blount & Kempton 1976; Masataka 1992). Although there is much debate about the motivation, function and outcome of such modified speech, there is agreement that, regardless of language type, sex of speaker, or sex of the child addressed, such modification is observable (Marschark 1997; McTear 1985; Masataka 1992). Further, it is the case that "certain characteristics (e.g., the use of expansions) have been reliably shown to have beneficial effects on language development" (Akhtar et al. 1991: 41). Motherese in spoken language provides speech to the young child which is brief, well-formed and intelligible (Newport et al. 1977). The differential use of features relates to parents' interactional strategies as well as to the young child's growing communicative competence (Blount & Kempton 1976; Launer 1982).

5.2 Signed Motherese

The current understanding of motherese and the role it plays in language acquisition has been based predominantly on research on spoken language (Reilly & Bellugi 1996). Although little research has been conducted on signed motherese, preliminary examinations of American Sign Language (ASL), British Sign Language (BSL), and, most recently, Japanese Sign Language (JSL), have found that deaf mothers modify the signed language they use when interacting with young deaf children (Maestas y Moores 1980; Woll et al. 1988; Masataka 1992; Spencer & Lederberg 1997).

In an early study of prelinguistic interaction in ASL, Maestas y Moores (1980) studied deaf parents' interactions with their children (aged 0;1 to 1;4), with an

emphasis on motherese. She found, parallel to spoken language, deaf mothers' speech to young infants involved: interspersing language acts with non-vocal affective acts (e.g., smiles, mouth movements); using simultaneous or alternate sensory modalities; and, repetition, slowed articulation and emphatic stress on certain signs. Maestas y Moores (1980) also found that deaf adults positioned themselves within the infant's visual field in order to maximise infant's attention, which appears to parallel the attention attracting function of exaggerated intonation patterns in spoken language. Additionally, Maestas y Moores noted that this attention-drawing function appeared in the mode-specific behaviour of deaf adults deliberately shaping signs in a manner which made the signs more visual for the deaf infant. This "infant-adapted sign formation" (Maestas y Moores 1980:3) included: physically guiding an infant's hands to the shape and movement of a particular sign; providing greater kinaesthetic information by signing on the infant's body and having the infant in contact (e.g., infant seated on mother's lap) while signing to another adult; and, signing on, or using objects in the environment as part of a sign. Erting et al. (1990), in a more recent study, described similar modifications in mothers' speech to young infants including: sign repetition; simplification of sign formation; location and movement; and, stimulation of one or more modalities. Erting et al. (1990) note that motherese in ASL is structured to engage an infant's attention and involvement in such communications.

A number of studies, although examining phonological, syntactic and morphological aspects of mother-infant interactions in ASL, provide further evidence for motherese in ASL (cf. Kantor 1982; Launer 1982; Meier 1982). Each of these examinations has similarly found modification and simplification in phonological, semantic, syntactic and pragmatic domains. However, as pointed out by Reilly & Bellugi (1996:235) in a later examination of grammatical properties of ASL, signed motherese "(u)nlike its spoken counterpart ... is not 'unswervingly grammatical'". Their own study, and previous examinations (e.g., Kantor 1982;

Launer 1982; Meier 1982), have found that prior to the age of 2;0 to 3;0, mothers may, by their enlargement and repetition of sign movement, neutralise the morphological markers (i.e., movement distinctions of manner, size and frequency) which distinguish noun-verb pairs in ASL. As particularly noted by Newport and Meier (1985:921), "since this failure seems to arise as the consequence of regular phonological processes ... and since its frequency diminishes as the children approach age 3;0, it may not hinder their acquisition". In their view, it is the way the child analyses the language, rather than the way the mother's input is organised, that characterises the early stages of the acquisition process (Newport & Meier 1985).

Further support of the findings in ASL is provided by examinations of deaf parent-infant interactions in BSL (Harris et al. 1987; Woll et al. 1988; Woll & Kyle 1989; Gregory 1995), and recently in JSL (Masataka 1992). These authors have also observed modifications in signed motherese, such as: greater repetition and expansion, and slower tempo than that of adult-directed signing; increased use of single signs, or shorter utterances; gaining attention by parents placing themselves within the young child's existing focus of attention; and, a tendency for signing to be accompanied by smiles, numerous mouth movements, and exaggerated facial expression (i.e., non-vocal affective acts).

Motherese appears therefore to occur in signed, as well as spoken languages (Marschark 1997). Motherese, be it spoken or signed, is designed to initiate and maintain interaction with young children at an optimal level (Masataka 1992; Woll et al. 1984). As with spoken motherese, the available research in ASL, BSL and JSL has shown that deaf mothers continually adjust their speech to fit the capacities of the young, and that gradual change in form and function occurs as the child grows and their language abilities develop.

5.3 Analysis of Auslan Motherese

This section, using data examples of child-directed signed language, will examine the form of Auslan used by deaf mothers with their young deaf children. It will investigate whether the ubiquity of motherese found in spoken languages also occurs in Auslan, and, further, will examine similarities and differences in strategies used in signed or spoken motherese in order to ascertain if they are amodal or mode specific.

Example (5.3.1) shows highly redundant and very simple structures being provided for the infant.

(5.3.1)[2]

mother ← ← ← ← ← ← ← ← ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
((holding infant in crook of arm, uses other hand to scoop
_ _ _ _ _ _ _ _ ↑ ↑ ↑ ↑ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
up some water, then lets it trickle down onto the infant))

WATER$_{++}$ {on infant's face} WATER$_{+}$

infant (smiles) ((kicks its legs))
_____ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓

mother (smiles) ((washes the infant with soap and again repeats
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ _____ _ _ _ _
trickling the water 2x onto the infant)) WATER (trickles
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ _____
water down onto infant 3x)) WATER {on infant's face}

infant (gurgles) ((kicks))
_____ ↓ ↓ ↓ ↓ ↓ ↓ _____

mother (smiles, nods) ((taps infant on chest 2x)) FINISH$_{++++++}$
((picks up infant out of bath))

(0;3.3) (13:1:11-15)

In example (5.3.1) the infant is being bathed in an infant bath placed on top of a bench top - at waist height for the mother. The mother is standing with one arm supporting the infant's upper body and bathing the infant with her free hand. The mother scoops up a handful of water and trickles it gently down onto the infant's torso. She then signs WATER (see Figure 5.1 below) three times on the

2 The line above the text in the examples in Sections 5.3 and 5.4 represent the eye gaze line of the *addressee* throughout the discourse.

infant's face (i.e., in the correct place and manner of articulation for that sign) and twice on her own face. The infant responds by smiling and kicking her legs. The mother then smiles and washes the infant with a cloth and some soap, scooping up more water and trickling it down onto the infant's torso. Completing the action, she then signs WATER. She then scoops and trickles the water onto the infant three more times completing this with the sign WATER on the infant's face. The infant responds by gurgling and kicking her legs. Her mother smiles and nods in response to the infant's behaviour. She then taps the infant twice on the chest to gain her visual attention and announces repeatedly (7 times) using the sign FINISH (see Figure 5.2 below) that the bath is at an end. The mother then removes the infant from her bath and dries and clothes her.

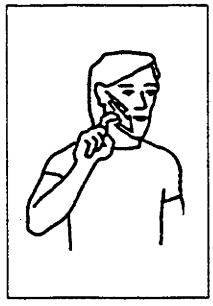


Figure 5.1 WATER

Figure 5.2 FINISH

In this sequence only two signs are used by the mother (i.e., WATER and FINISH) as illustrated in the above Figures 5.1 and 5.2 respectively. Throughout this interaction the sign WATER is repeated a total of seven times, while FINISH is produced seven times in a row. Repetition for any given sign within an interaction, such as the one illustrated, appeared to occur quite frequently within these data. Signs were often repeated as many as 12 times, compared with single production of a sign in other contexts. Previous research has found that much repetition, or highly redundant use of a word or sign, is a typical feature of motherese regardless of the mode of language production (cf. Gallaway & Woll 1994; Masataka 1992; Newport et al. 1977). Further, as in previous findings on signed motherese, most utterances directed to young infants, up to approximately the age of about 2;0 in these data, consisted of only one or two signs in length (e.g., Messer 1994; Woll &

Kyle 1989). As pointed out by previous examinations of motherese in general (e.g., Harris et al. 1989; Snow 1976) there is a tendency for utterances to be produced which are very simple in structure, involving only one or two sign utterances. Similar to previous research, and regardless of language mode, Auslan motherese appears to produce child-directed speech which is of decreased structural complexity compared to that of adult-directed speech.

Another feature found common to early signed motherese interactions is demonstrated in example (5.3.1), when the mother produces WATER directly after demonstrating the physical substance of water by scooping up handfuls and trickling it down gently onto the infant's torso. The infant immersed in water was, therefore, exposed not only to the feel of being *in* water, but the feeling of and sight of water as it was trickled onto her body. A feature of signed motherese, not unknown in spoken motherese, is the tendency for parents to frame communicative acts that stimulate for their infant more than one sensory modality. In this example the mother uses the water to stimulate her infant's visual and tactile senses. She then links the visual and tactile stimuli to the kinaesthetic modality by proceeding to sign WATER on her infant's face. As previously found, deaf parents in these data seem to frame their communicative acts to stimulate more than one sense (e.g., visual, tactile, kinaesthetic), either singly or in combination (Maestas y Moores 1980). This pattern of stimulation is proposed to be an effort on the part of deaf parents to relate signs to the environment in meaningful, referential ways (cf. Launer 1982).

The mother's sign production of WATER on the infant's face not only stimulates the infant's kinaesthetic modality, but also provides an example of "infant-adapted sign formation" (Maestas y Moores 1980:3). In signed motherese, infant-adapted sign formation is the strategy of moulding and reciprocal placing of signer's hands on

addressee's body, or vice-versa. Signing on the body of a young child was a strategy found common to all mothers in these data. In example (5.3.1) the mother produces the sign WATER by forming the handshape for WATER with her own hand, then placing her hand on the infant's face in the correct location and moving her hand downward from the side of the infant's mouth toward her chin. This is the correct form and manner of production - it is simply produced on the child's face rather than the mother's own face - that is, it is reciprocally placed. In early infant interactions this manner of a mother's formation of a sign on an infant is very common.

Likewise, the practice of moulding, or physical guidance, evident in example (5.3.2) on the facing page, is typical of early interactions. Physical guidance involves the mother holding and moving the infant's hand or hands in the action of the sign. In this case the mother moulds the infant's hand to an approximation of the handshape required for the sign MUMMY (see Figure 5.3 facing page) and gently taps it to the infant's head, paralleling the correct place and manner of articulation for this sign. As yet the infant, at only 5 months of age, cannot physically produce the handshape (i.e., the fingerspelt M), nor produce the sign himself, but with gentle manipulation of his hand the mother creates the sign. Not only does she provide a model by signing MUMMY herself, she then stimulates the senses of the infant by adapting her sign and locating MUMMY on his head, and then gently moulding and guiding him to produce the sign MUMMY himself. Thus, not only does the mother demonstrate the look of the sign to the infant, but also the feel of the sign. An interesting point here is that, although the mother in example (5.3.2) configures the infant's hand into an approximate handshape, she ensures that both location and movement of the sign are correct. It appears from these data that, at this early age, mothers are primarily interested in the infant's kinaesthetic awareness of both location and movement of signs, rather than particularly concerned about hand configuration (cf. Launer 1982).

(5.3.2)

	↓ ↓ ↓ ↓ ↓ ↓ _____
mother	((pats infant on hand 4x)) MUMMY$_{++++}$
	_____ ↓ ↓
	point {to self}$_{+++}$ MUMMY$_{+++}$
	_____
infant	(vocalises)
	↓ ↓ ↓ ↓ _____
mother	((pats infant on hand 3x)) MUMMY$_{++}$
	_____
	MUMMY {on infant's head}$_{+++}$ MUMMY$_{++++}$
	_____
	((picks up infant's hand)) MUMMY$_{+++}$
	_____
	((releases infant's hand)) MUMMY$_{++++}$

(0;5) (4:2:33-35)

In example (5.3.2) the infant is seated in a high chair, with tray table in front. The mother is seated on a chair facing the infant. The mother directs her infant's attention away from the toy he is playing with on the high chair tray, and to herself, by patting his hand until he looks to her. She then names herself by signing MUMMY (see Figure 5.3 below) repeatedly, points to herself three times, and again signs MUMMY repeatedly. The infant responds by vocalising and his attention drifts. The mother pats his hand again to gain attention and repeats naming herself MUMMY. She then gently makes the sign for MUMMY on the infant's head (i.e., the correct place of articulation for this sign) four times, retracts her hand from the infant and relocates the sign back to her own head. The mother then picks up the infant's hand and, holding it in a '5-hand' shape, gently taps the infant's hand on his head repeatedly to form MUMMY. Releasing the infant's hand she again models the sign for him, herself.

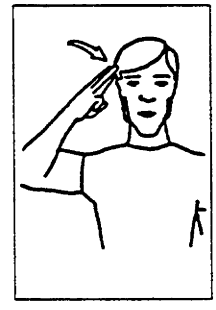


Figure 5.3 MUMMY

A further parallel strategy found in both signed and spoken motherese is exemplified in (5.3.2), with the mother positioning herself for maximum attention. Repeatedly, throughout these data, parents can be seen moving themselves or an object into the existing area of a child's visual attention. Particular to signed language constraints is the necessity of face-to-face interaction. If there is not mutual visual attention between deaf participants in a conversation, communication cannot occur. Deaf mothers must, when communicating with their deaf children, ensure that they have the children's visual attention (Littleton 1998a; Mohay 1993). This modality-imposed constraint leads to signed motherese including features such as: greater use of touch (e.g., patting or tapping) to gain a child's visual attention; increased pointing to direct attention; increased indexing of objects or referents by pointing on or in close proximity to them; and, use of objects in the environment as part of a sign (Maestas y Moores 1980). In the above example (5.3.2), the mother pats the infant's hand to gain his visual attention, as is evident by the shift of his eye gaze from looking down to the ground to looking directly at his mother (refer to the eye gaze line). The mother also indexes herself by pointing onto her chest a number of times as the referent of MUMMY, and, in addition, places herself directly in front of the infant for the duration of the interaction. A number of the signed motherese adaptations are particularly evident in the following example (5.3.3). Again, the mother: positions herself directly in front of the young child; displays the object (i.e., a red ball) that she is speaking about; and, incorporates the object indexed as part of the sign, by holding the red ball in her active hand as she signs the colour and name of the object.

Throughout the corpus of data deaf mothers consistently ensure that they have established mutual visual attention with their young child. This awareness is apparent in the way they: place themselves or objects into the child's existing visual focus; resist signing to the child until they have their visual attention; persist

in strategies (e.g., tapping/patting in 5.3.2 above, and waving in 5.3.7, below) to gain the child's visual attention; and also take advantage of times when the child looks at them spontaneously to insert language. It appears that deaf mothers start this visual monitoring from their first interactions with their infants, and are persistent in fostering this looking behaviour. As evident in these data for this study and previous signed motherese research, "by about 20 months of age children of deaf parents already have good looking patterns and spontaneously look at their parents more frequently than do children of hearing parents" (Mohay et al. 1996:2).

Examples (5.3.3) and (5.3.4) below are illustrative of a number of very important features of signed motherese which parallel spoken motherese articulations. In example (5.3.3) the mother is playing hide-and-seek with her infant.

(5.3.3)

mother	↑ ↑ ↑ ↑ WHERE$_{+++}$ HIDE WHERE *Where is it? Where, where, where? Where's it hiding?*
infant	(smiles, vocalises)
mother	((displays red sponge ball)) R#E#(1.6)D B#A#L#(2.0)L *This is a red ball.*
	((puts ball on high chair tray)) WHERE RED BALL *Where's the red ball?*
infant	((grabs [red ball, chews on red ball))]
mother	[(smiles) ((leans forward)) GOOD GIRL GOOD GIRL] *Yes. Good girl. Good girl.*

(0;6.3) (13:2:2-6)

In example (5.3.3) the infant is seated in a high chair with a tray table in front of her, and the mother is seated on a chair facing the infant across the tray table. The mother is playing the game hide-and-seek with a blue, plastic flower, chew toy. She asks the infant repeatedly WHERE (see Figure 5.4 below) the toy is hidden. The infant responds by smiling and vocalising. The mother then gets another toy, a red sponge ball. She shows it to the infant and then, holding the ball in the active hand whilst signing, she slowly articulates the colour of the item RED (see Figure 5.5 below) and its name BALL (see Figure 5.6 below). The

signs for red ball are produced slowly, the handshapes are rigid and exaggerated. The mother then places the ball down on the tray table among a number of items already there and asks WHERE the red ball is. The infant grabs up the red ball and begins to chew on it. The mother smiles in a positive response to the grab, then leans forward to tell the infant that she is a GOOD GIRL, repeating this utterance again to the infant. The hide-and-seek game then continues.

Figure 5.4 WHERE

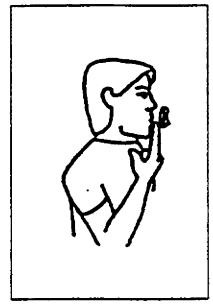


Figure 5.5 RED

Figure 5.6 BALL

A constant feature of motherese, in general, is that production of a sign/word is clear in its articulation, simple in its form and produced more slowly than forms delivered to adult users of the language (Maestas y Moores 1980; Newport et al. 1977; Snow 1976). The mother in example (5.3.3), in her signing of RED BALL, forms each handshape required for production very slowly and clearly. She begins by placing the handshape for RED (see Figure 5.5 above) on the place of articulation, the chin and mouth area, and holds the sign in place longer than usual. The mother then produces the movement of the sign with great deliberation. Once she has finished the production of RED she holds the handshape in place for an unusually long period(i.e., 1.6 seconds). The mother, rather than flowing smoothly down into the articulation of BALL as with typical conversation, retracts her hands into a relaxed position, then forms the handshapes for BALL (see Figure 5.6 above) again slowly and clearly, holding at the beginning prior to deliberate production of the movement of the sign, and holding the end of the sign movement for a period of

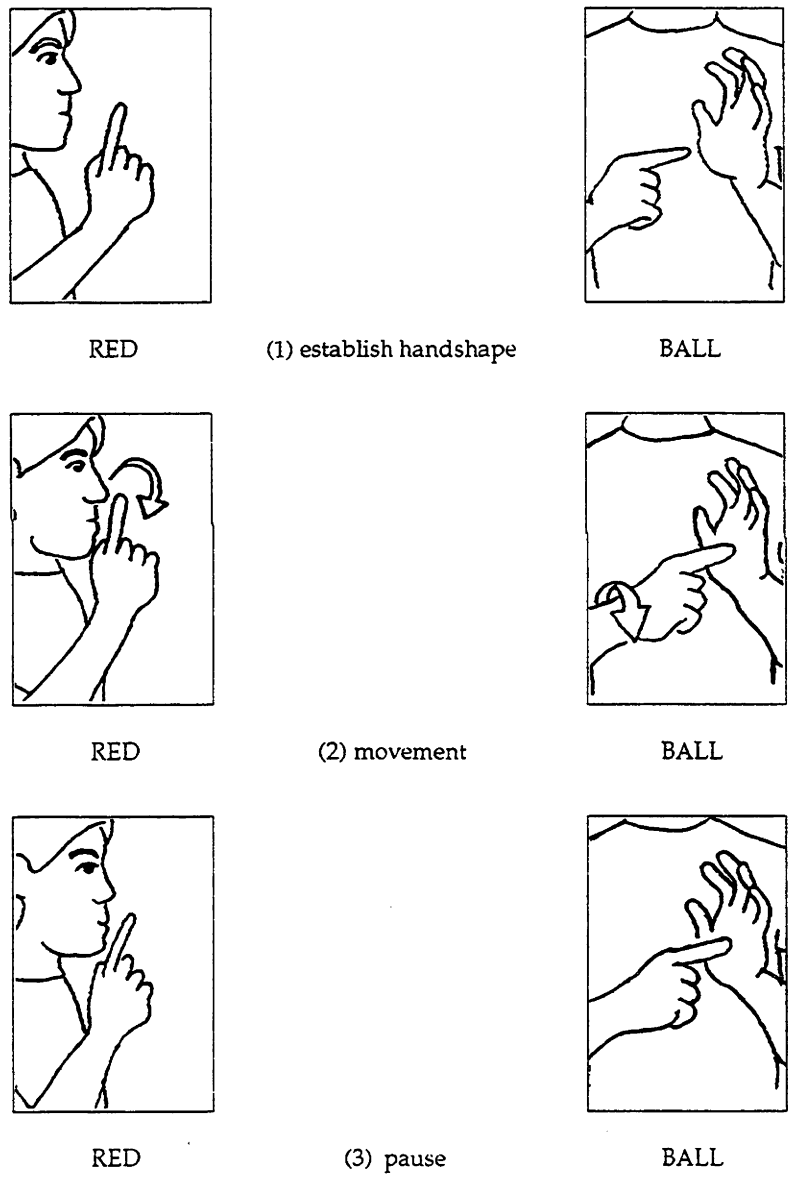
time greater than normal (i.e., 2.0 seconds)(cf. Johnston 1989a). The mother in this example provides a clear, deliberate, slow articulation to her infant, just as a hearing mother may enunciate a word slowly and clearly to her young child.

In these data each instance of parents' deliberate production of a sign followed a distinct pattern. The pattern of articulation involved three steps. Initially the parent would form the handshape required for the sign very slowly and clearly; (1) establish handshape. The next step involved the parent placing the handshape on/in the place of articulation for the sign and then performing the movement required very slowly; (2) movement. Finally, the parents would, on completion of the movement, hold the handshape of the sign in place for an extended period (i.e., about 1.0 to 2.0 seconds duration); (3) pause. In examples (5.3.3) above and (5.3.4) below the use of this pattern is quite evident. Using example (5.3.3) to illustrate:

(1)	establish handshape	RED	(the 'G' handshape)
		BALL	(the G and '5' handshapes)
(2)	movement	RED	(the 'G' handshape is placed on the point of chin and rubbed upward toward the nose and across the lip surface)
		BALL	(the 'G' handshape is placed at right angles and in the centre of the '5' handshape and then rotated right)
(3)	pause	RED	(the 'G' handshape is held slightly away from the chin, lip and nose area in front of the face)
		BALL	(the tip of the 'G' handshape is held in place at right angles and in the centre of the '5' handshape) (see following Diagram 5.3.1 The Production Pattern).

In essence, the parents in these data deconstruct the sign into its constituent parts of handshape and movement in a slow and deliberate manner, the consequence of which is the provision of a clear model of a sign's form and manner of production.

Diagram 5.3.1 The Production Pattern*



The father in example (5.3.4) on the facing page, provides an additional illustration of the clear, deliberate, slow articulation of signs with young children.

* The illustrations featured in Diagram 5.3.1 are adapted from Johnston (1989a).

(5.3.4)

	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ _____
child	((turns page of book)) [MONKEY$_{+++}$]
father	_____ [MONKEY$_{+++}$]
child	_____ (smiles) ((turns page of book - looks to father))
father	_____ _ _ _ _ _ _ _ _ _ C#R#O#C#O#D#I#L#E$_{+}$ ((leans forward))
	_____ C#R#O#C#O#D#I#L#E ((leans forward))
	_____ C#R#O#C#O#D#I#L#E {formed around child's head}
	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ ((pulls child's head gently toward himself))
child	_____ @ @ [@ @ @ @]
father	_____ [@ @ @ @]

(1;6.2) (10:4:13-18)

In example (5.3.4) father and child are seated on the floor facing one another. The child is looking at a pop-up picture book about animals that is on her lap, the father close enough to be able to see each picture as she turns the page. As the child turns the pages she looks at each page and then up at her father, so that he can name the animal pictured for her. The first picture is of a MONKEY (see Figure 5.7 below) and both father and child name the animal a number of times. The child smiles and turns to the next page. The next picture is of a crocodile. The child looks to her father, waiting. The father then produces the sign CROCODILE, slowly and clearly. He then expands and exaggerates the sign (see Figure 5.8 below) extending the movement of the sign (i.e., a scissoring motion) to the full extent of his arms, leans forward and engulfs the child's head with the sign form and pulls her head gently into the imaginary jaws of his signed crocodile. After much laughter the father and child continue looking at and naming the pictures in the book.

Figure 5.7 MONKEY

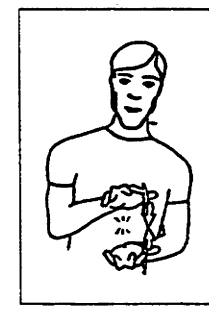


Figure 5.8 CROCODILE

The father, in the previous example (5.3.4), in naming animals for his child from a picture book, shows similar processes of clarity and deliberation in his pronunciation of the sign CROCODILE. The sign is two-handed, with the hands (i.e., both 'spread' handshapes) palms together facing one another, the fingers bent forming the jaw or teeth, and the movement is a single open and close motion (cf. Johnston 1989a). The movement normally occurs only from the elbow to hand; but in this case the father extends this to include his whole arm from the shoulder joint, creating an extended scissors motion with his arms. Each time he opens and closes the CROCODILE sign form the movement gets larger and larger, and is gradually shifted from its neutral signing space toward the child, finally engulfing the child in its motion. Not only does the father exaggerate the movement, the whole sign procedure is slow, each opening and closing held at beginning and end. Using this exaggerated form he also creates a fun game for the child.

A further similarity, evident in both the examples of articulation of RED BALL and CROCODILE, is that of exaggerated intonation or, in the case of sign, size and movement (Blount & Padgug 1977; Launer 1982). Exaggeration of sign movement (e.g., rubbed back and forth as in FINISH (5.3.1)) occurs quite often in these data. A sign movement may occur only once (e.g., RED BALL), or be repeated many times (up to 12 times). Also, as previously found in signed motherese studies, signs in these data were often enhanced by "mimetic extension" (e.g., Launer 1982:141; Maestas y Moores 1980). Mimetic extension is explained quite simply in the literature as "enhancing", "elaborating" or "extending" the "image base" of a sign (Launer 1982:140-143). Signs have a base form, which in some cases is termed "iconic" in nature - that is, they mimic one or more features of the objects they represent (Power 1997:8). When the features which 'mimic' the object are exaggerated, elaborated or extended by changes in the base sign's formational properties (e.g., movement, direction) this form is said to be mimetically extended.

For example, the father in (5.3.4) above mimetically extends the sign for CROCODILE when he increasingly exaggerates the movement of the sign and gradually shifts the locus of the sign's production forward toward the child, finally extending it to the point that the sign form of CROCODILE is large enough to engulf or bite the child's head. The father's exaggeration has allowed his arms to mime almost the true size of a crocodile's jaws and their ability to bite - in essence he extended the sign to mime the head and jaws of a crocodile engulfing his child's head between its teeth. It appears that such enhancement of the image base of a sign functions as a means of relating a sign form to its referent, often resulting in extending the qualities or actions of a referent within the sign form (Launer 1982).

Examples (5.3.5), (5.3.6), (5.3.7) and (5.3.8) below, are all illustrative of the use of questions posed to young deaf children by their mothers. In example (5.3.5) there is additional evidence of slow formation and repetition of the form DOG, but also repetition of the interrogative form WHERE as the mother queries the infant about the family dog.

(5.3.5)

mother: DOG$_{+++}$ WHERE DOG ((picks up picture book))
point {on picture of dog} D#O#G$_{++}$ WHERE

infant: ((grabs book looks at picture of dog)) WHERE

mother: DOG$_{++++}$ WHERE$_{+}$ point {outside window}
((taps infant on arm 2x)) DOG$_{+++}$

(0;8) (13:3:31-33)

In example (5.3.5) the mother and infant are seated on the floor at right angles to one another, and there are toys and books scattered around. The mother signs DOG a number of times, then queries where the dog is. She picks up a picture book nearby and leafs through the pages until she finds a picture of a dog. The mother then points onto the picture of the dog, repeating the sign DOG four times, before asking WHERE the dog is. The infant grabs the book with one

hand, looking at the picture, whilst with her free-hand she signs WHERE (see Figure 5.9 below). The infant looks to her mother and again the mother repeats DOG numerous times before asking WHERE. The mother then answers her own question by indicating to the infant that the dog is outside, pointing to this location through a nearby window. The infant follows her mother's direction, and then is drawn back to attend to what her mother is saying by the mother's use of the attention-getting strategy of tapping the infant's arm. The mother, having gained the infant's visual attention, once again signs DOG repeatedly.

The mother in example (5.3.6) below uses the interrogative form WHAT as she queries her young infant about the contents of a toy basket.

(5.3.6)

infant	((looking at basket of toys))
mother	WHAT$_{++}$ point {inside basket} WHAT point {inside basket} *What's in there?* *What's in there??*
	(tilts basket toward infant))
infant	((looks at basket reaches hand toward objects))
mother	((reaches in basket and brings out blue plastic teddy bear)) ↓ ↓ ((displays toy)) BLUE BEAR $_{+++}$ {made on toy bear's head})
	F#A#C#E $_{++}$ {made on toy bear's face} F#A#C#E
	FACE {on infant's face}
infant	(smiles) ↓ ↓ ↓ ↓ ↓
mother	(nods, smiles) ((putstoydown)) WHAT point {inside basket} *What else is in here?*

(0;5) (10:2:25-30)

In example (5.3.6) the mother and infant are seated on floor with a basket of toys beside them. The mother points into the basket and asks the infant WHAT (see Figure 5.10 below) is inside it. Repeating her question she then tilts the basket toward the infant so that the infant can see inside. The infant reaches a hand toward the basket of toys. The mother names the object (BOOK) that she thinks the infant was reaching for, and points onto it to verify that it is what the infant was reaching for. The infant again reaches forward toward an object. The

mother reaches in and takes out a blue plastic toy bear and signs the colour BLUE, and then signs onto the toy BEAR. She then displays the bear forward to the infant, signing FACE - using the toy bear's face as the place of articulation. She repeats the sign for FACE on herself, and then again on the infant's face. The infant smiles in response. The mother places the toy on the floor and then asks the infant what else is in the basket, repeating the question, only to withdraw another object and continue to play the game.

Figure 5.9 WHERE

Figure 5.10 WHAT

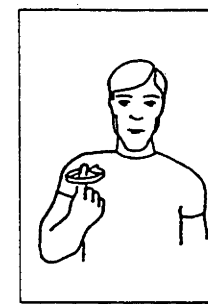


Figure 5.11 WHO

Figure 5.12 WHY

Figure 5.13 HOW

One of the observable features of spoken motherese is the high incidence of interrogatives (cf. Blount & Padgug 1977; Snow 1977). Research of signed language is not clear, however, on the use of interrogatives as a feature of signed motherese. Studies examining the speech of mothers (hearing and deaf) to deaf children have found deaf mothers to use fewer question forms than hearing mothers (particularly Wh-questions) (cf. Power, Wood, Wood & MacDougall 1990; Woll & Kyle 1989). In contradistinction, Reilly and Bellugi's (1996) study of deaf mother-infant dyads found Wh-questions to occur just as frequently in signed, as in spoken motherese.

Throughout the corpus as a whole there were frequent occurrences of Wh-questions used by parents with their young children. The interrogative forms WHO (e.g., 5.3.7), WHERE (e.g., 5.3.5), WHAT (e.g., 5.3.6), WHY (see Figure 5.12 above), and HOW (see Figure 5.13 above) were all evident. The parents' usage of these forms began whilst their infants were quite young. For example, in (5.3.3), in her utterances to her five-month old infant, the mother uses the sign WHAT a number of times, to query what is in the basket of toys they are both looking through. In example (5.3.6) above the mother queries her eight-month old about the whereabouts of the family dog, repeatedly using the sign WHERE. In fact, throughout these data, Wh-questions are used by parents with their young children from the first instance in these data, appearing at five months of age, and continuing through to four years of age (i.e., the scope of the available age range of this corpus of data).

Questions posed by deaf mothers signing to their children under the age of 2;0 have previously been found to be predominantly ungrammatical (cf. Snitzer-Reilly et al. 1990; Reilly & Bellugi 1996). In contrast, deaf mothers' utterances within these data did not appear to exhibit ungrammatical Auslan structure. Auslan is a topic-comment language, it does not use word order to show the relationship between subject and object in a sentence, but has relatively free word order (refer to Chapter 2, sub-section 2.4.3 Sign Order). For example, in Auslan the English question *Where is the dog?* can be asked in the following manner:

WHERE DOG	DOG WHERE	WHERE DOG WHERE
Where is the dog?	*Where is the dog?*	*Where is the dog?*

The sentences presented above are all grammatically acceptable constructions in Auslan. The mother in example (5.3.5) above asks her young child the whereabouts of the family dog using all of these options. This provides for the child not only

grammatical input, but a variety of models of possible Auslan sentence constructions. Further, it was found throughout these data that all Auslan utterances provided by parents to their young children showed correct grammatical structure.

An additional point to note about the current data is that the analysis is based on language produced by parents to infants as young as six weeks of age, through to young children aged three to three and a half years of age. It must be remembered that motherese is, in general, noted for fewer words per utterance (i.e., brevity) and decreased structural complexity (i.e., simplified syntactic constructions), which, in general terms, results in utterances of one, two or three words in length.

It was found in these data that parents frequently used interrogative forms in utterances addressed to their young children. This finding of a high interrogative content apparent in signed parental utterances is supported by recent research by Woll and Kyle (1994) of BSL. Further, in these data, parental utterances addressed to young children prior to the age of 2;0 showed grammatically 'correct' question forms, unlike previous findings of "ungrammatical" question forms to children of this age in ASL (cf. Reilly & Bellugi 1996:235). Naturally, as a consequence of producing utterances aimed at immature users of the language, the syntactic and morphological structures are simpler than those that would be produced with older children or adults. This, however, is surely an artefact of typical modification made when using motherese - simpler, shorter and more slowly delivered utterances. Needless to say, findings such as those of Reilly and Bellugi (1996) about the level of grammaticality in a topic-comment language, with utterances of predominantly one to two signs' length, are disputable at best. So, it is simply stated that in these data deaf parents were found to use 'unswervingly grammatical' Auslan motherese - that is, brief, simplified, well-formed and intelligible utterances.

Example (5.3.7), on the facing page, provides a further example of the form of image-extension discussed previously. The mother in this example links her question form (WHO) to the image base (the picture of the man), by pointing directly onto the image of the referent (*Who is this?*). Rather than relating, as in the above example, the iconic quality of the sign CROCODILE (e.g., 5.3.4 above) to the picture of the crocodile through the mimetic extension, here the mother uses the image extension to relate her question directly to the object of inquiry. Pointing on, or to a referent occurs quite often in these data, and, as has been previously suggested, appears to be intended to ensure that the referent of the potential communication is identified and comprehended, in a direct way, by the child (Littleton 2000; Maestas y Moores 1980).

The following examples, (5.3.7) and (5.3.8), show clearly a modality-specific feature of signed motherese - the use of kinaesthetic and tactile information provided to the child through contact with the mother's body during signed utterances. In example (5.3.7) on the facing page, mother and child are looking through a picture book together; and in example (5.3.8) on the following page, the mother is trying to get her young child clean after he has been playing with some black paint and got it all over his hands and face. In both examples (5.3.7) and (5.3.8) the mother and child are conversing with one another, but the child's body, instead of being apart from the mother in a typical face-to-face interaction, is in contact with the mother's torso, with both mother and child facing the same direction. In the first example (5.3.7) the young child is seated on the mother's lap and she provides kinaesthetic and tactile stimulus as she signs her utterances. Not only does the mother sign on herself and the book in front of them both on the table, but, as previously seen, uses reciprocal placing by signing on the child's body.

(5.3.7)

mother ↓ ↓ ↓ _ _ _ _ _ _ _ _ _ _ _
WHO point {picture of a man)
Who is this?

_____ _ _ _ _ _ _ _ _ _ _ ↓ ↓ ↓ ↓ ↓ ↓ ↓
MAN point {on picture of man} MAN {on child's face}
It's a man. *A man.*

child @@@

mother _____ _ _ _ _ _ _ _ _ _ _ _ _ _ _
ARM point {traced down arms in picture} ARM_{++}
↓ ↓ ↓ ↓ _____ _ _ _ _ _ _ _ _
[ARM {on child's arms}] ARM_{++}

child [((wriggles)) (smiles)]

(2;0) (15:4:52-55)

In example (5.3.7) the child is seated on the mother's lap, her back resting again her mother's torso. On a table directly in front of the pair is a book comprised of photographs of people (e.g., men, women, children, body parts such as arms, feet, hands, etc.). The mother in this example is asking the child WHO the picture is of, that she points on. The mother then forms the sign for MAN (see Figure 5.14 below) and reiterates the point onto the picture. She then forms the sign for MAN in the correct manner within the child's signing space, on the child's face. The child laughs in response. The mother then makes the sign for ARM (see Figure 5.15 below) on each of her own arms, after which she demonstrates the sign for ARM on the picture book illustration. The mother then signs ARM on each of the child's arms, and demonstrates the sign ARM three more times in her own sign space. Looking at and naming the pictures in the book is continued.

Figure 5.14 MAN

Figure 5.15 ARM

(5.3.8)

mother	point {into mirror to child's face) [BAD DIRTY]
	You bad boy, your face is all dirty.
child	[(smile)]
mother	[(shakes head)] CHEEKY (sm [ile nods)]
	No, not bad, you're cheeky. Yes, cheeky.
child	[(cheeky grimace)] [(smile)]
mother	((turns with child in arms, gets cloth, turns back to mirror))
	((wipes child's face))
	↓ ↓ ↓
child	points {to the reflection of his nose in the mirror}
mother	(smiles, nods) ((taps child on chest 2x proffers cloth))
child	((leans forward, presses hands flat against mirror$_{+++}$))
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
mother	((wipes child's hands$_{+++}$ proffers cloth$_{++}$))
child	((smears hands together$_{+++++}$))
	↓ ↓ ↓
mother	(waves$_{+}$) CAN'T BLACK$_{+}$ LOOK$_{+}$
	I can't get the black off. Look at all the black. Look.
child	(grins)
mother	LOOK$_{++}$ DIRTY$_{++}$ FACE
	Look. Look see how very dirty your face is.
child	LOOK
	↓ ↓ ↓
mother	(nods) DIRTY WHAT point {to child's face}
	Yes, I'm looking at how dirty it is. Your face is?
child	DIRTY
mother	(nods)
	Yes.

(3;1) (3:4:72-88)

In example (5.3.8) the child has been painting with black paint and has it on his hands and face (see Figure 5.16 below). His mother has told him to go to the bathroom so that she can clean his face and hands. The mother picks the child up with one arm, and faces both herself and her son toward the large wall mirror, with the basin close by. She begins the process by pointing in the mirror towards the child's face, telling him he's bad to get himself so dirty, then with a negative shake of her head changes that to him actually not being bad, but

cheeky. The child responds to this by smiling at her initial BAD, and then grimaces cheekily at her and smiles. The mother turns to the sink with the child in her arms, picks up a damp face cloth and then turns back to the mirror. She then wipes his face vigorously. When she stops to check his face, the child indicates that his nose is still dirty. His mother agrees, and then taps his chest and proffers the cloth so he can wipe his nose. The child ignores the cloth, and taking advantage of his dirty hands presses them against the mirror to make dirty hand prints, then looks at his hands and wipes them together. The mother wipes at his hands and again proffers the cloth for him to clean himself with. He again wipes his hands together, smearing the paint between them. The mother tries to gain his attention by the strategy of waving in the mirror near where he is looking. She then signs that she cannot get the black off, and for him to look at himself and see the black paint all over his face and hands. The child grins at her and himself in the mirror. His mother again tells him to look at how dirty his face is. The child quite proudly tells his mother to look at his dirty face. She responds *yes*, that it is dirty. The mother then asks the child what his face is. The child tells her it's DIRTY (see Figure 5.17 below) The mother agrees and continues to attempt to clean the child's face and hands free from the paint.

Figure 5.16 FACE

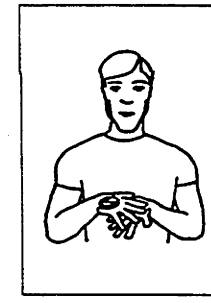


Figure 5.17 DIRTY

The second example (5.3.8) again illustrates the young child in contact with his mother's torso as she signs, but here the displacement of the sign both in and on the mirror, and the use of an object (i.e., the mirror) to enable visual attention to one another, also allow for visual input as well as the additional kinaesthetic input. In both of these instances the child is provided with not only language input through signed utterances, but kinaesthetic and tactile stimuli from the contact with the adult signer's arms, body, and legs. Additionally, through the physical experience of 'going through the motions', this strategy sensitises the child to the orientation and movement of particular signs.

As noted by Maestas y Moores (1980), the frequent practice of deaf parents to sign, with the infant on their lap, to another adult speaker provides the young child with the parent's point of view during signing. The child not only receives the direct stimulus of spatial position and orientation of their mother's signs, but also the kinaesthetic information provided by the contact with the parent's body as it moves, and the visual perspective of being in conversation with another competent adult user. It is possible that these specific features of signed motherese may, in a way, reflect the prosodic features found typical of spoken motherese. The prosodic features of spoken motherese involve the auditory dimensions of tone, duration, pitch, phonetic quality and volume, and primarily perform the function of conveying (facial) affect (Blount & Kempton 1976; Snow 1977). For the deaf the auditory channel is unavailable, however the visual and manual channels are available.

Perhaps what is occurring is a translation of spoken prosodic contours into physical contours. When deaf parents sign with their deaf child on their lap they provide the equivalent of spoken prosodic features in the rhythm of their signing, which the child feels via the contact with the parent's body. Rhythmic gestures (or beats) are a recently-noted feature of signed languages, and may consist of only simple up-and-down, or back-and-forth movements that move with the rhythm of signed speech. Beats have been found to provide a similar accompaniment to that provided by prosodic features (e.g., intonation) in spoken language. As in spoken language, beats may be used to stress certain elements of speech for the purpose of emphasis or clarity (Rime and Schiaratura 1991; Schembri 1996). Thus, the deaf child in contact with the adult signer's movements not only receives kinaesthetic and tactile stimulus, but, additionally, is being sensitised to the subtle nuances and rhythms produced in signed adult-level language. As pointed out by Mohay et al. (1996:3) "(s)igning *on* an object or *on* the child, and using facial expression, body language and gesture to support language, are all strategies used to help clarify meaning".

Gradually, as can be seen from the first example (5.3.1) through to the last example (5.3.8) in which the young child is just over 3 years of age, signed motherese input changes over time. Similar to spoken motherese, the input is still simple, short utterances, but utterances increase in length, subject matter becomes broader, and redundancy decreases. As with hearing mothers, deaf mothers adjust their input to conform to the child's apparent linguistic level. As the child's degree of attention and understanding increase, deaf mothers adjust features of their signed input to maintain their child's interest and responsiveness.

The mothers in these data were also observed increasingly to use greater variation of 'handedness'. Handedness in signed language refers to the fact that certain signs may be produced with different hands, or both hands simultaneously. Some signs require two hands, such as BALL (see Figure 5.18 below), whilst others require one hand. However, two-handed signs may also be made one-handed. The sign FINISH (see Figure 5.19 below) is made with both hands. Often, however, as frequently observed in these data, a parent holding an object in one hand would often produce a two-handed sign with just one hand. The use of one hand to produce a two-handed sign may also occur as a matter of choice. Whether the parent signing was left or right handed also influenced which hand was used for one-handed sign production. If the parent was right-handed, one-handed signs were predominantly produced with the right hand, and if left-handed, the left hand.

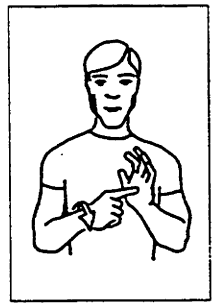


Figure 5.18 BALL

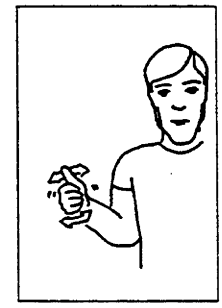


Figure 5.19 FINISH

The parents in these data were observed increasingly to use different combinations of handedness in productions. This increase in differential use of single or two-handed signs could simply be an artefact of an increase in utterance length and complexity as their child matured, and language input became more complex. It could also be, however, a means by which parents in these data slowly introduced the handshape phonemes of Auslan, just as hearing parents introduce the different phonemes in spoken language. Auslan has thirty one distinctive handshape phonemes, with thirty two regular variants of these base handshapes (Johnston 1989a; Schembri 1996). The base and variant handshapes may have only small differences in production, similar to the slight differences in pronunciation of, for example, /g/ in spoken English (see Figures 5.20 and 5.21 below, for examples of the base and variant of the 'G' or 'Point' handshape, respectively).

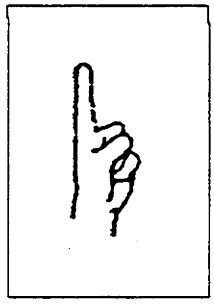


Figure 5.20 Base Form

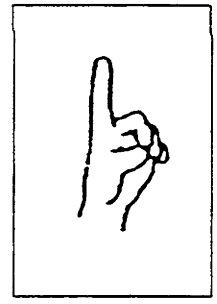


Figure 5.21 Variant Form

'G' or 'Point' Handshape

Auslan, as pointed out above, has certain signs which may be produced either one- or two-handed. These data show parents using a variety of one and two-handed signs, which increase in number as the deaf children mature. It is probable that, in order to understand the parameter of handshape in signed language, as with the phonemes of spoken language, one must gradually be introduced to all the possible handshapes and each handshape's variant hand configurations. Furthermore, in learning to combine these phonemes, hearing and deaf children alike are presented

with simplified examples of adult language that are then gradually increased in length and complexity. Additionally, the child learns that: signs may be made with the left or right hand, and handedness of an individual (i.e., left or right hand dominant) may influence hand usage; signs may be made whilst holding an object; all signs are not one-handed but may also be two-handed; and two-handed signs under some circumstances may be made with one hand, but also that some signs must be made with two hands. As motherse do with spoken language, it appears that deaf mothers slowly introduce the various types of 'sounds' and 'sound' combinations (i.e., signs, phrases and sentences) of their language to their deaf children.

5.4 Discussion

Motherese, the language that adults use in interactions with young children, has been found to be both simpler and have greater redundancy than the language used with mature language users (Snow 1976). Further, previous research has shown that this modified style of speech is apparent in speech directed to deaf or hearing children, regardless of the mode of language delivered - spoken or signed (Maestas y Moores 1980; Marschark 1997).

The current study of Auslan motherese reveals several modifications which parallel those reported for previous investigations of spoken motherese. When interacting with their infants, deaf mothers in these data: repeat a sign a number of times (e.g., in 5.3.7 above, the mother repeats ARM 7 times); sign at a relatively slower tempo (e.g., H#I#P#P#O#P#O#T#A#M#U#S, in 5.4.1 below); produce shorter utterances of predominantly one to two signs in length (e.g., WHAT + point {inside basket}, in 5.3.6 above); position themselves for maximum attention from the child (e.g., in

5.3.4 above, the father seats himself facing the child); intersperse vocal and non-vocal affective acts with language (e.g., smiles, head nods, facial expressions); and, use a high frequency of interrogatives (e.g., WHAT and WHO in 5.3.6 and 5.3.7 above). However, as pointed out by Mohay (1997:3), "whilst many of these adaptations can be seen to parallel 'motherese' in spoken language, many are also specifically geared to ensuring the viability and intelligibility of communication to deaf children". More simply, Auslan is a visual-manual language, and so deaf mothers use all the available visual, tactile and kinaesthetic means at their disposal to ensure that their utterances to their deaf child are presented in optimal conditions for communication and this enables the child to acquire the language.

Differences between spoken and signed motherese occur because of the differences in language mode. From a communicative perspective, the critical difference between the two modes is that visual reception demands a directional focus, whereas auditory reception does not. Gaze is necessary, therefore, for signed linguistic input. As such, signed motherese functions entirely in the visual modality, and requires far greater emphasis than spoken motherese on visual attention of young children. It is in the differential use of sensory modalities and modes of communication that, as pointed out by Newport and Meier (1985) and Newport (1988), some of the properties of signed motherese lack analogy to spoken motherese.

A number of features identified in this research are similar to previous findings on ASL (e.g., Marshark 1997), BSL (e.g., Woll & Kyle 1994), and JSL (e.g., Masataka 1992). Signed motherese in Auslan also exhibits: infant-adapted sign formation in the form of physically guiding a child's hands into the shape and movement of a given sign (e.g., HIPPOPOTAMUS, 5.4.1 below); signing directly on an infant's body

(e.g. in 5.3.1 above, the mother signs WATER on the infant's face); stimulation of more than one modality at a time (e.g., in 5.3.7 above, the child is provided visual, tactile and kinaesthetic stimulus by the mother's actions); and, exaggeration and expansion of the form and movement of particular signs (e.g., CROCODILE in 5.3.4 above). Further, deaf mothers in these data do a number of things in order to focus their child's visual attention: place themselves or part of themselves into the child's existing focus of attention; pat or tap to redirect the child's visual attention; bring or display objects of reference directly in the child's line of sight; and point, or sign directly on, or in very close proximity to a referent. In essence, Auslan motherese exhibits all the specific modality-driven modifications found previously in signed language motherese research.

Example (5.4.1) below, in which mother and child are seated at a table playing together, provides an illustration of a mother correcting her child's sign 'pronunciation'.

(5.4.1)

mother	↓ ↓ ↓ ↓ ↓ ↓ _____ ((offers child toy hippopotamus)) (nods) *This toy?*
child	_____ (nods) ((rubs palms together)) {approx. of hippopotamus]
mother	↓ ↓ ↓ ↓ _____ ((taps child's arm x2)) H#I#P#P#O#P#O#T#A#M#U#S$_{+}$ *No, like this. h-i-p-p-o-p-o-t-a-m-u-s, h-i-p-p-o-p-o-t-a-m-u-s,*
child	_____ ((sits still))
mother	_ ((reaches forward, takes child's hands and makes the right hand flat with fingers slightly crooked and the left hand the same, and then places the hands together palms facing, then gently 'opens and closes' the form)) H#I#P#P#O#P#O#T#A#M#U#S
child	_____ HIPPOPOTAMUS$_{++}$
mother	_____ (nods, smiles) *Yes.*

(2;2.1) (6:2:71-75)

A number of inconsistencies between the current findings on Auslan motherese and previous findings on signed motherese are also evident. Although the incidence of baby-talk in the form of non-vocal affective acts are evident in these data (i.e., smiling, mouth movements, non-linguistic facial expressions), there appears to be no imitation of 'baby signs' as found in previous studies (cf. Caselli 1983; Launer 1982). Launer (1982), in her examination of ASL motherese, notes the incidence of mothers copying the phonological simplifications of their young children's baby signs. Example (5.4.1) above, in which the child makes an approximation of HIPPOPOTAMUS, provides the potential for such imitation by the mother. Deaf mothers in these data, although accepting of their child's use of 'baby signs' or approximations of an adult-form of a sign, do not imitate such forms. Deaf mothers in these data, unlike those in Launer's (1982) study, appear to focus on preservation of all phonological features of sign production (i.e., handshape, location, movement and orientation), not just on the 'morphological features' (i.e., general production components of a given sign and accompanying appropriate facial behaviours) (cf. Launer 1982:144).

The morphological feature of interest in these data were those components which are termed non-manual. Non-manual morphemes in Auslan are produced on the face, and may involve the whole, or only parts (e.g., the lips, the eyebrows) of the face, and are used to modify the meanings of the signs with which they co-occur (Johnston 1989a) (see Chapter 2, Sub-section 2.3.5 Expression). For example, the 'puffed cheek' morpheme is produced by puffing out the cheeks, and is used to indicate a time in the distant past (e.g., LONG AGO), great effort (e.g., WORK HARD), or large dimensions (e.g., FAT Figure 5.22 in comparison to OBESE Figure 5.23 on the facing page). These non-manual morphemes in Auslan appear to have an intensifying function for the sign they accompany and, as such, do not appear to occur in isolation (Brennan 1992; Schembri 1996).

Figure 5.22 FAT

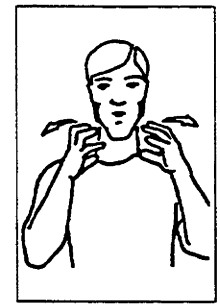


Figure 5.23 OBESE

In agreement with Reilly and Bellugi's (1996) study of ASL motherese facial behaviours, there appears to be some evidence of morphological stripping with young children in these data. That is, certain non-manual morphemes required for morphological marking of certain signs are either removed by the deaf mothers, or replaced by affective facial expressions. Unlike in spoken language the face, in a visual-manual language, is multi-functional and used for both linguistic and affective purposes. In these data, it is evident at times that mothers replace grammatical expression with affective expression (e.g., shock, surprise), and in this manner can be seen to 'strip' certain grammatical properties from their signing. For example, the morphological marking for yes/no questions in Auslan consists of: raised eyebrows, widened eyes, eye contact with the addressee, and the head tilted forward - similar to the prototypical affective expression of surprise. The marking for content questions, for example Wh-questions, differs only in feature by the lowering or furrowing of the eyebrows, reflective of the prototypical affective expression for anger (cf. Ekman, 1979; Johnston 1989a). These question features in Auslan, have been found to be very similar to those reported for ASL and BSL, however, as yet, it is not clear whether all, or only some features are obligatory (Brennan 1994; Schembri 1996). It is widely reported, however, that such morphological marking is highly favourable, but optional, and can be overridden by affective expressions (e.g., shock, surprise) (cf. Johnston 1989a).

Therefore, in deference to previous researchers (e.g., Launer 1982; Snitzer-Reilly et al. 1990; Reilly & Bellugi 1996), the reduced use of facial morphology by deaf mothers in these data may indeed be termed as ungrammatical production. However, all mothers, hearing or deaf, use their face to express affective information, particularly with infants and young children. Whilst hearing mothers use their face to convey only affective and social information, deaf mothers must use their face to convey linguistic as well as affective and social information (Reilly & Bellugi 1996). It is more likely that, in early input, deaf mothers' use of facial expression for affective purposes simply overrides the optional linguistic markers; which does not necessarily constitute ungrammatical utterances - simply affective ones. Furthermore, if the prototypical features for surprise (i.e., raised eyebrows, wide open eyes, etc.) as noted by Stern (1977) also function to signal a readiness and invitation to interaction, then the mother would likely unconsciously override content question marking which may inadvertently signal anger (i.e., lowered/furrowed brows). Whatever the influence for the stripping of such markers, and despite the occurrence of such, deaf mothers' input appears to convey the required linguistic information for acquisition, because the general finding is that sign language learners achieve the same linguistic milestones in the manner, and at the rate, of learners of spoken language (Reilly & Bellugi 1996).

A further interesting point of difference in the current data is the prevalence of interrogative usage by Auslan motherese. Reilly and Bellugi's (1996) investigation of ASL found that very few grammatical questions are asked of young deaf children prior to the age of two years. In the present data, questions posed by mothers to their young infants (i.e., as early as five months of age) appear to be acceptably phrased to the grammatical constraints of Auslan (i.e., topic+comment structure, free-word order). The Wh-question forms produced by deaf parents to their young children that, according to previous research, have been shown to be fewer in

number than those produced by hearing parents with their hearing children (Power et al. 1990; Woll & Kyle 1994), were prolific in number and used with young children in the current corpus from as early as five-months of age. It is not clear whether or not this difference is due to overall subject numbers in the relevant studies, or data constraints. What is clear, however, is that there is evidence in Auslan motherese of the use of grammatical interrogative (particularly Wh-questions) forms to their young deaf children.

Image elaboration, described previously, occurred frequently in these data, as can be seen in the father's production of CROCODILE in example (5.4.2) below.

(5.4.2)

child	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ _____
	((turns page of book)) [MONKEY$_{+++}$]
father	_____
	[MONKEY$_{+++}$]
child	_____
	(smiles) ((turns page of book - looks to father))
father	_____ _ _ _ _ _ _ _ _ _ _ _
	C#R#O#C#O#D#I#L#E$_{+}$ ((leans forward))
	_____
	C#R#O#C#O#D#I#L#E ((leans forward))
	_____
	C#R#O#C#O#D#I#L#E {formed around child's head}
	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
	((pulls child's head gently toward himself))
child	_____
	@ @ [@ @ @ @]
father	_____
	[@ @ @ @]
(1;6.2)	(10:4:13-18)

It appears, similar to Kyle and Woll's (1994) study, that such elaborations occur as models of signs that mothers want their child to attend to and/or copy in form. Auslan is conveyed in the visual modality, and so children must learn to produce linguistic information across multiple channels (i.e., the eyes, face, hands, arms and body). As such, they must attend visually to co-occurring signals and learn to reproduce what they see in a coordinated, integrated manner (Baker & Padden

1978; Reilly & Bellugi 1996). It is believed, therefore, that parents in these data use exaggeration and elaboration of signs specifically: to draw the child's attention to a new or novel sign; to model the precise form; for naming purposes; and predominantly as a tool by which to teach their young children the process of conveying multiple signals in an integrated and coordinated manner.

The examination of the current corpus shows Auslan motherese to exhibit the special characteristics of being brief, well-formed, and intelligible, as has been found previously in motherese research in general (cf. Newport et al. 1977; Snow 1976; Woll & Kyle 1994). Further, differences found between Auslan motherese and spoken motherese parallel modal differences found in previously investigated signed languages, and appear driven by the constraints imposed by a visually perceived and manually produced language. It appears that mothers, both deaf and hearing, alter their language, signed or spoken, in communications with young children. Motherese appears, therefore, to be ubiquitous to all language.

In accord with previous suggestions about the reasons behind the special characteristics of motherese, it is apparent that modifications in these data arise out of the mother's desire to communicate about the here-and-now with a limited, immature language-user. Motherese in Auslan involves the simplification of semantic and syntactic complexities of language, for the primary purpose of deaf mothers being able to communicate the form and function of language in its simplest form to their deaf child who is in the process of acquiring the language. It is *this* that will enable deaf children to communicate about their world of red balls, toy birds, and hippopotami.

6

Initiation

> *The child has his or her own natural means for calling attention selectively to aspects of a scene. Interaction with an adult provides the child with an opportunity to learn the conventional means for doing so.*
> (Bruner 1983)

Introduction

The acquisition of communicative competence is necessary for children to engage in successful communication. A prerequisite to children's success in conversation, and one of the earliest skills they must acquire, is the ability to initiate a conversation (Deucher 1984; Keenan & Schieffelin 1976). Initiations are crucial for conversation in that they open conversational exchanges. For a successful initiation of conversation a speaker must be able to gain and maintain a listener's attention, and take account of the listener's knowledge in the construction of the initiating utterance (Keenan & Schieffelin 1983; McTear 1985).

Although the literature on children's competence in conversation initiations is limited, it has been found that children use both verbal (e.g., vocatives) and non-verbal (e.g., tapping or waving) means of gaining a potential interlocutor's attention (cf. Foster 1979; McTear 1985; Ochs et al. 1979). However, in visual-manual or signed communications the process of gaining and directing attention is constrained by the uni-directional channel of vision. In order to gain a potential

interlocutor's attention mutual visual contact must be achieved. In Auslan there are a number of strategies that will be of interest in this chapter, by which a 'speaker' may establish and then direct the visual attention of a potential 'listener'. This chapter will initially outline the form and structure of initiation in conversational discourse and review the available literature on initiation of spoken and signed conversation. Following this, analyses of examples of initiation devices found in deaf mother-child interactions in Auslan will be discussed, particularly concentrating on the form of strategies dictated by the receptive and productive modalities of Auslan.

6.1 Initiating a Conversation

'Initiations' are utterances which predict or expect a response. They function to begin a conversation or to ensure that the conversation will continue for at least one more turn (McTear 1985). Keenan and Schieffelin (1983) propose the following model as a representation of the interactional work involved in the initiation of a conversation:

> 1. the speaker must secure the attention of the listener;
> 2. the speaker must articulate his utterance clearly;
> 3. the speaker must provide sufficient information for the listener to identify objects, etc., included in the discourse topic;
> 4. the speaker must provide sufficient information for the listener to reconstruct the semantic relations obtaining between referents in the discourse topic.
>
> (Keenan & Schieffelin 1983:79).

Keenan and Schieffelin (1983) cite Steps 1. and 2. as general requirements of any successful communication, with Steps 3. and 4. as, more specifically, prerequisites of topic establishment. As noted by McTear (1985), Steps 1. and 3. refer, respectively, to the function of the initiating strategies of attention-getting and

attention-directing. Thus, prerequisite for a successful initiation of conversation is the speaker being able to gain and direct the listener's attention, and make provision for the listener's knowledge in the initiating utterance (Keenan & Schieffelin 1983; McTear 1985).

In order to gain a potential listener's attention the speaker uses strategies which are overtly directed toward gaining the addressee's attention. These attention-getting strategies include both non-verbal and verbal devices (Ochs Schieffelin, & Platt 1979). Non-verbal devices may include: touching the addressee (e.g., tapping); waving at the addressee; and establishing eye contact with the addressee. Verbal means may include the use of a vocative (e.g., 'hey'), and various prosodic or paralinguistic devices (e.g., increased pitch or amplitude). The speaker may use one strategy exclusively, or combine two strategies. For example, the speaker may tap the addressee (non-verbal strategy) while saying the name of the addressee (verbal strategy) (Keenan & Schieffelin 1983; McTear 1985).

Directing the attention of an addressee involves the speaker using strategies which identify for the addressee the objects, persons or events referred to in a following utterance (McTear 1985). Attention-directing strategies also involve both non-verbal and verbal means (Ochs et al. 1979). Non-verbal means may include: pointing to something; showing something to the addressee; and initiating eye contact with the addressee. Verbal means may use vocative (e.g., 'hey' or 'look'), and various prosodic devices similar to those employed for attention-getting (McTear 1985; Ochs et al. 1979). Similarly, a speaker may use only one strategy, or a combination of two or more strategies as a means of directing the addressee's attention. For example, the speaker may use a non-verbal strategy (e.g., showing an object to the addressee) while using a verbal strategy (e.g., stating the name of the object to be attended to) (Keenan & Schieffelin 1983; McTear 1985).

6.2 Spoken Initiation

As noted by McTear (1985) and Atkinson (1979), initiation of conversation is often assumed to be so natural that it does not merit or require serious investigation. Even within the prolific domain of the hearing child's conversational competence literature, there are only a limited number of studies which illustrate the use of strategies by children to gain and direct attention in the initiation of conversations. Keenan and Schieffelin's (1976) examination of topic as a discourse notion found that both verbal (i.e., crying, vocatives) and non-verbal (i.e., touch, eye gaze, turning toward, and getting closer to the speaker) devices were used by the children as a strategic means of ensuring the attention of the addressee toward a particular topic of conversation. Similarly, Ochs et al. (1979), examining strategies for linguistically encoding an idea or proposition, found that children rely heavily on attention-getting devices to convey propositions, in both single utterances and sequences of utterances. These authors also noted that children use both verbal (vocatives, prosodic devices - whining, screaming, increased pitch) and non-verbal (e.g., touching, showing, eye gaze) devices for the pragmatic function of gaining attention. In conjunction with the findings of Foster (1979) and Ochs et al. (1979), McTear (1985) examined children's conversation and found that, in strategies used to identify for the listener the objects, persons or events referred to in an utterance, children also used non-verbal strategies (e.g., pointing, showing, eye gaze) to direct a listener's attention toward a particular referent. McTear (1985) also found that children alternate between use of a single strategy, or a combination of strategies for the purpose of either gaining or directing a listener's attention.

Various studies have also examined the use of initiation devices by very young children. In a study of the developmental path of hearing children's use of gestures and vocalisations Foster (1979) found that the earliest use of initiation strategies occurred between the ages of 0;1 and 0;5 months, and involved the infant directing

attention to itself by means of crying or other types of noise. A later development was the children's ability to direct attention to objects within the immediate environment through reaching behaviours at about 0;5 months; pointing at about 1;0 year and 0;3 months; and, the use of attention-directing words at around 1;0 year 0;10 months. In a case study of the development of attention-directing behaviour in the second year Carter (1978) noted that, before the use of conventional attention-directing words (e.g., 'look'), children use prelinguistic devices which generally involve the co-ordination of gesture and vocalisation. Similarly, Wellman and Lempers (1977) found that both verbal (e.g., 'hey') and non-verbal (e.g., pointing) attention-getters are used by children as young as two years.

It appears, from the review of literature above, that hearing children develop various strategies for gaining and directing attention in order to initiate conversational interaction. These attention-getting and directing strategies may be either verbal (e.g., vocatives, prosodic devices) or non-verbal (e.g., touching, pointing, showing, eye gaze), and are used either singly or in combination as means of initiating interaction with an interlocutor (McTear 1985; Ochs et al. 1979). Further, the children examined appear to use such attentional strategies from an early age, and were found to display an increased use of strategies as a function of maturation in communicative competence (cf. Foster 1979; Mueller 1972; Mueller, Bleier, Krakow, Hagedus & Cournoyer 1977).

6.3 Signed Initiation

Studies of deaf mother-infant interaction and the nature of early interactions in the visual-manual modality allude to the use of initiation strategies in early communicative interactions in signed languages. Maestas y Moores (1980), in her examination of ASL interactions between deaf infants and their deaf parents,

described interactions as "relying heavily on physical and visual contact" (Maestas y Moores 1980:5). She noted that the deaf parents incorporated a variety of strategies to gain and maintain the infant's attention, such as tapping and patting the infant's body, physically orienting the infant to ensure they could attend to visual-gestural communication, and often signing on the infant's face or torso. In a study of BSL acquisition, Carter (1981) paid some attention to the acquisition of communicative strategies, noting that children demonstrated knowledge of the necessity of establishing eye contact with the addressee, and used tapping or touching as a strategy to gain the attention of the addressee. Launer (1982), investigating the nature of motherese in ASL in her study of deaf mother-child pairs, found communicative strategies used by deaf parents included positioning the child's body to maximise attention, signing on the child's face or body, and, when using the pointing gesture to direct attention, touching the referent person or object. In a similar study of ASL Kantor (1982) noted that parents brought the object to which they were referring directly into the child's visual field to gain their attention, and pointed extensively to direct the child's attention toward a particular referent.

In an examination of 'motherese' in deaf mother-infant interactions in BSL, Harris, Clibbens, Chasin and Tibbets (1989) described deaf mothers' ensuring the infant's attention was gained or directed through signing, pointing, or displaying objects within the child's existing focus of attention. The authors proposed that the mothers adapted their behaviours in this manner to ensure that their infants were provided simultaneously with the relationship between sign and context. Kyle and Ackerman (1987:14) and Ackerman and Woll (1990), examining mother-infant interaction in BSL, similarly found that deaf mothers engaged "in a whole range of movement behaviours", such as touching, pointing and showing, to gain and direct the infant's attention. More recently of ASL, Erting et al. (1990) found that deaf mothers engaged in a variety of touching behaviours, such as tapping, patting and

movement of the infant's body, as they sought to gain and maintain their infant's attention.

More specifically oriented to the communicative strategies involved in initiation of conversation is Prinz and Prinz's (1985) study. Researching ASL adult-child conversation they found a differential pattern of occurrence of two attention-getting strategy types: Strategy 1 - repeating original form of noticing or using another form of noticing (e.g., pointing, looking at an object); and Strategy 2 - using devices overtly directed toward an addressee (e.g., touching the addressee, waving a hand/arm, showing something to addressee). Prinz and Prinz noted, as an aside, that they "initially investigated attention-getting strategies employed by the children", but "(did) not detail the form or function of these strategies" (Prinz & Prinz 1985:5). They do, however, report the finding of a developmental increase in the use of adult-like attention-getting devices (i.e., Strategy 2) the older the children became (Prinz & Prinz 1985). Further, Kyle and Woll (1994), studying language development in children of deaf parents, found tapping to be a frequently used attention-getting device of deaf mothers. They reported that an increase of tapping occurred when children were between 1;0 to 2;0 years of age, and noted that this may be related to developmental changes in the young child.

Further evidence of initiation strategies used in communication has emerged, most recently, in a number of studies of ASL, BSL and Auslan. Research in ASL and BSL in the last decade has particularly concentrated on the aspects of intuitive parenting of deaf parent-child social interactions. In examination of various aspects of communication and interaction, a number of authors, concentrating on ASL (e.g., Waxman & Spencer 1997; Spencer & Lederberg 1997; Lederberg & Everhart; Swisher 2000) and BSL (e.g., Harris 2000), have compared the impact of variations in mother and child hearing status on mothers' strategies related to infant visual attention. These studies have, in general, found that the intuitive strategies of deaf mothers skilled in communicating in the visual mode provide more accessible

language input to their infants than those strategies employed by hearing mothers. Further, in detailing the strategies used by deaf mothers each of the studies attributed this greater success to the employment of more visual strategies, such as moving objects, tapping objects, tapping the child directly, and waving or hitting the floor, on the deaf mothers' part. Research conducted by Harris and Mohay (1997), into BSL and Auslan, investigated the differences between hearing and deaf mothers abilities in gaining and directing their deaf children's attention. The study revealed the deaf mothers were more successful than the hearing mothers at eliciting the attention of their deaf child, by the use of physical means to gain attention (e.g., touch, waving), and also in the direction of attention (e.g., pointing, showing objects). Mohay et al. (1996) and Mohay et al. (1997), specifically concentrating on Auslan, examined native signers' use of initiating strategies in Auslan for the basis of a proposed 'home' program. The proposed program aimed to make language more visible to the deaf child, using detailed strategies by which to gain and direct the deaf child's attention to language. These authors, concentrating on hearing mothers' awareness of their deaf children's need for visual contact in communication, outlined specific strategies for mothers to employ in initiating conversation with their deaf child. The proposed 'deaf' mothers' strategies to be taught to the hearing mothers in this program included: the use of pointing to direct attention; placement of self or objects in the child's visual field; the use of touch and eye gaze; producing utterances directly on an object or in close proximity; and, taking the opportunity to produce language when the child looked to them spontaneously.

However, it is the preliminary studies done in development of the current research that provide the most specific examination of initiation strategies in early deaf mother-child interactions to date (Littleton 1996, 1998a). These studies focussed on the initiation strategies of attention-getting and attention-directing in deaf mother-child signed language (Auslan) discourse. The studies detailed not only the specific

types of initiation strategies used in attention-getting and attention-directing, but also those differentially used by an adult to a child, and by a child to an adult. Examining deaf children from as young as 0;1 month and 2 weeks of age through to 4;0 years of age, these studies showed that deaf children used initiation strategies from an early age, and increased their use of strategies as a function of maturation in communicative competence (cf. Littleton 1996, 1998a).

Furthermore, an important point to note about the study by Prinz and Prinz (1985), and the preliminary studies for this research (Littleton 1996, 1998a), is that they not only provide the beginnings of analyses of initiation strategies in signed communicative competence by deaf children, but also the first analyses of child-initiated interactions in signed language. Previous examinations of signed languages have concentrated on language development from the perspective of parental input, with little or no examination of the child's part in the communicative process. However, conversational sequences are interactive units, jointly constructed by the participants. Therefore, examination of both adult-child and child-adult usage is necessary to understand the development pathways of signed language acquisition.

Although studies of the acquisitional path of communicative competence in deaf children are extremely limited, the above-mentioned literature on 'motherese', and the studies by Prinz and Prinz (1985), Littleton (1998a) and Mohay et al. (1997), point to certain features of attention-getting and directing strategies employed by deaf parents in interaction with their infants, and the use of initiation strategies by deaf children in conversation. Further, the literature makes apparent that the conditions under which language is acquired in a visual-manual mode differ from those common in spoken language acquisition. In particular, the modality of reception and production of signed languages necessitates greater visual attention and the use of "simultaneous sensory modalities" (Launer 1982:1) for communication.

6.4 Analysis of Auslan Initiation

This section will use data examples to review previous examinations of initiation in deaf mother-child conversation. Initially, illustrations of the form and function of initiation strategies of attention-getting will be presented, followed by illustrations of attention-directing strategies found in signed interactions. Examples of both adult-child and child-adult sequences will be demonstrated.

6.4.1 Attention-Getting

The examples presented in this sub-section illustrate attention-getting strategies used by participants to gain the attention of another to initiate conversational interaction. Parents, as competent adult conversationalists, provide a model which serves as the child's basis for conversational development, and so, type and usage of attention-getting strategies used by deaf adult users of Auslan will be considered initially. Following adult examples of each attention-getting strategy this examination will then consider child usage of the particular attention-getting strategy, in order to consider what deaf children learn about initiation of conversation using attention-getting strategies.

6.4.1.1 Touch

Example (6.4.1.1.1) on the facing page shows one of the strategies used by parents of deaf children in order to gain the attention of the child, that of touch. As illustrated by the facing example, this usually involves patting or tapping the child on part of their body to orient the child to attend visually to manual communication. This strategy is primarily used when the child is within close physical proximity to the adult and the child's eye gaze is averted.

(6.4.1.1.1)[1]

	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
mother	point {to picture of scarf in picture book}
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ → → → →
child	((child looks down at book)) point {to picture of scarf}
	→ → → → → → → → → → → → → → → →
mother	WHAT point {to picture } SCARF ((taps child on upper part
	What's this? *A scarf.*
	→ → → → → → → → → → → → → _ _ _
	of chest 6x then taps child under chin 3x)) point {to book}
	Look at the book.
	_ _
child	((child looks to where mother's finger is pointing))
	↓ ↓ ↓ ↓ ↓ → → _____ ↓ ↓ ↓ ↓ ↓ ↓
mother	((taps child under chin)) LOOK ((taps under chin))
	Look.
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ _ _ _ _ _ _ _ _ _
	LOOK ((taps under chin)) point {to picture}
	Look at this.
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
child	((child looks to picture))
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
mother	((mother turns page of book))

(1;7) (1:2:11-17)

In example (6.4.1.1.1) the mother and child are seated on the floor. The mother is next to the child, and directly in front of them both is a picture book lying open on the floor. The mother points to a picture of a scarf, the child follows her point and repeats the mother's action. The mother then asks the child to name the object and begins to produce the required sign for SCARF. Noticing that the child is not attending she taps the child on the upper right hand part of her chest six times, then, due to the child's continued lack of attention, taps her under the chin - the child then turns her attention to the picture book. The mother, requiring the child's attention to be focussed on her, taps the child under the chin three times and then forms the sign LOOK with the '2 hand' placed at the corner of the child's eye and directed outward tracing an arc toward her own eyes, directing the child's attention towards herself (Johnston 1989a). This is repeated until the child attends to the mother. The mother, once attention is established, directs the child's attention back to the picture of the scarf and, once attention has been established, turns the page of the book to continue the process of naming the pictures in the book.

1 The line above the text in the examples in Section 6.4 and 6.5 represent the eye gaze line of the *addressee* throughout the discourse.

In order to establish eye contact the parent, as in example (6.4.1.1.1), will tap or pat the child on a part of their body (e.g., upper part of chest, under chin), and then leave their hand resting on the child until visual contact is established. Once the visual channel has been established, the parent is able to communicate what they wish to say (Littleton 2000; Mohay et al. 1996; Woll & Kyle 1994).

From available examples in these data, mothers begin in infancy the process of socialising the child to the attention-getting strategy of touch. It appears that, when the child is an infant, the parent needs only to touch the infant two to three times to gain attention. When the child is older, between one and two years of age (see example 6.4.1.1.1), touch to gain attention requires more persistent contact. The increase in touch around this age appears to reflect the natural tendencies of the human attention system, that is, the child will focus on novel, changing or uncertain elements in a situation (Bates 1976; Kyle & Woll 1994). Thus, at a certain age children's attention is easily distracted, and so is harder to maintain for extended periods of time; this in turn requires the parent to touch the child a greater number of times in order to gain the required attention. As illustrated by example (6.4.1.1.1), the mother attempts to gain her child's attention by tapping her on the chest six times. When this fails to gain the child's attention the mother becomes more direct and taps her child under the chin three times, gaining the child's visual attention only long enough to tell her to look at the book. Again the child is distracted very quickly, and must be redirected to attend a number of times through the use of the touch strategy. However, within a very short period of four to ten months, the child again readily responds to two-three taps or pats and pays attention promptly (Littleton 1996).

The touch strategy appears to be part of the fundamental process in socialising the child to the nature of the visual-manual mode. That is, the child must learn that face-to-face interaction is imperative in signed language, because without direct eye gaze with the parent, or any other interlocutor, communication cannot occur.

Through learning that a touch, such as a pat or tap, is a type of summons to gain a another's attention and in order to get another to accept the role of, and be available as, a recipient, the child is learning one of the parameters of a visual-manual language; that is, in order to communicate you must first gain the potential interlocutor's visual attention.

(6.4.1.1.2)

child	↓ ↓ ↓ _____ ((taps mother on foot))
mother	WHERE MUMMY SHOE *Where are mummy's shoes?*
child	SHOE +
mother	SHOE WHERE *Where are my shoes?*

(1;1) (9:2:18-21)

In example (6.4.1.1.2) mother and child are seated on the floor side by side, looking at a picture book. The child stands up and walks over to her mother's bare feet. She then taps her mother's foot and looks toward her mother's face. Her mother asks *Where are mummy's shoes.* The child then signs SHOE twice, whilst looking around the area and back to her mother. The mother then asks where her shoes are again, and they both go to look for the shoes.

As with the adult use of the touch strategy[2] children employ pats or taps (usually on a part of the adult's body) in order to gain attention. Illustrated by example (6.4.1.1.2), again, this strategy is used when the mother is close to the child, usually within arm's reach, and her attention is directed elsewhere. The child will pat or tap, for example, the parent's foot (e.g., 6.4.1.1.2), knee, arm, or anywhere else that is close to hand (e.g., the elbow), to indicate a desire for attention in order to communicate what they wish to say.

It appears, from these data, that children begin to use the touch strategy to gain attention at approximately 1;0 to 1;2 years of age. This strategy does not seem to be employed until the child has reached the stage of physical development at which

2 The use of the word 'strategy' is not intended to imply that the child is necessarily behaving in a *consciously* strategic fashion. The term, as it is used here, simply applies to behaviour sequences which have the effect of accomplishing the structuring of conversational interaction.

they are capable of intentional, independent movement. Additionally, it is probable that a further pre-condition of children's use of the touch strategy is that they have come to understand that touch is one way to gain someone's visual attention. It seems that, even at an early age (i.e., approximately 1;0), the children in these data are aware of the necessity of eye contact/attention in order to be able to tell their parents something they wish to say. As can be seen in example (6.4.1.1.2) above, generally the children in these data do not begin their utterance until a parent's eye gaze has been focussed on their face, and they are aware they have gained the parent's visual attention. The children's awareness of the necessity of establishing mutual eye contact for communication suggests that they have developed an awareness of the visual channel as an essential mode in signed language communication.

6.4.1.2 Vibration

Another strategy employed in attention-getting involves tapping, hitting, or banging on an object or material which is able to conduct sound waves (e.g., the plastic high chair tray (6.4.1.2.1) facing, wood, glass). This signals to the child through vibration, that the parent requires their attention. Employing such a strategy is dependent upon the availability of a suitable material on which to create the vibration, and is used to gain attention only when the intended recipient of the summons can be expected to feel the vibrations.

From the facing example (6.4.1.2.1), and further examples found in these data, it seems that the parental use of the vibration strategy with children of a young age involves a continual action of tapping or hitting the object until the attention of the infant is gained. It would appear that, as the infant begins to link feeling a vibration with a parent wanting their attention in order to communicate something, the number of taps or hits need not be as frequent and may be reduced in number.

(6.4.1.2.1)

↓ ↓ ↓ ← ← ←
infant ((seated in high chair))
_____ ← ← ← ← ← ← ← ← ←
mother DADDY WHERE DADDY WHERE DADDY WHERE
Where' daddy? Where's daddy? Where's daddy?
← ← ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ _____ ↑ ↑ ↑
((taps high chair tray)) MUMMY WHERE MUMMY WHERE
Where's mummy? Where's mummy?

(0;6) (12:4:4-5)

In example (6.4.1.2.1) the infant is seated in a high chair and the mother is sitting directly facing the infant. The mother is asking the infant where her father is, and the infant responds by turning her head and directing her eye gaze towards her father. The mother then taps the plastic tray front of the high chair directly in front of the infant, continuously, until the infant turns back and re-establishes visual contact with the mother. The mother then asks the infant where she is.

The parents in these data appeared to tailor the use of the vibration strategy, as with that of touch, to the comprehension abilities of the child. In early interactions the mothers tap/hit an object for quite prolonged periods until the child responds with the required attention, whereas, once the child recognises that it is a summons and their required response to a summons should be or is expected to be their attention, the parents accordingly reduce the number of taps/hits used in this attention-getting strategy. Further, this strategy can be adjusted by the parent to perform the additional function of indicating to the child the importance of a potential communication. This type of usage may additionally function to direct the child's attention to sign as a communicative activity.

Children in these data also employed the strategy of vibration to gain the attention of their mothers. Use of this strategy, however, relies upon the child developing the understanding that certain materials carry vibrations and that someone in contact with that material may feel this vibration, and further, that such vibrations may be used to let a person know that someone wishes to speak with them and so requires their attention. Example (6.4.1.2.2), below, is illustrative of the ability of the child to

understand that by tapping on the wooden table her mother's body, in contact with the table, will feel her vibrations and recognise them to be a summons, and turn her visual attention to her child. The example shows this response and the subsequent communication that the child wished to address to her mother.

(6.4.1.2.2)

	↓ ↓ ↓ ↓ _____
child	((taps table 3x)) point {to chest} NOTHING (shakes head)
	I haven't spilt anything on me.
	_____
	point {to chest}
	_____ _ _ _ _ _ _ _____ _ _ _ _ _____
mother	NOTHING WE SAME+ MUMMY NOTHING FEEL WET
	We're the same. We haven't spilt anything because we've been
	_____
	CAREFUL EATING CAREFUL
	eating carefully. Be careful.

(2;10) (2:4:85-86)

In example (6.4.1.2.2) mother and child are seated at a wooden table eating breakfast. The child is at the head of the table and her mother is seated to her right. The mother eating her cereal has her attention focussed on her bowl. The child taps the table three times, and her mother responds to the taps by reorienting her attention to the child's face. The child, realising she has gained her mother's attention, tells her that she hasn't spilt any of her breakfast down her front. The mother responds by saying that she and the child are the same, and that she has not spilt any of her breakfast either adding that it is because they have been eating carefully. The mother then adds a final caution to continue to be careful. The mother and child then return to eating breakfast.

As with previous strategies, children in these data began to use vibration as an attention-getting strategy when they were capable of intentionally-oriented movement. Further, effective use of this attention-getting strategy appeared reliant upon children's comprehension, not only of the necessity of mutual eye gaze for signed communication, but of the conductive quality of certain materials to carry vibrations and of the need for participants to have mutual contact with the material being employed. These data suggest that children appear to begin using this strategy between 2;10 to 3;0 years of age.

6.4.1.3 Waving

A further strategy to gain attention, employed by parents in these data, is that of waving or making other similar types of hand gesticulations within the visual range of the child to signal their wish to communicate. The wave strategy appears to be most often directed toward the child's direct line of vision, but it also appears effective if made within the periphery of the child's visual field. This strategy was usually used when the child was not within close proximity to the parent to indicate to the child that the parent wanted their attention.

(6.4.1.3.1)

	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
mother	((lifts infant onto her lap facing father))
	↓ ↓ ↓ _____
father	[((waves at the infant))]
mother	[points { to father }]
	_____
father	LI [G H T]
	Light is on.
	_____↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑
infant	[LIGHT] point {to ceiling light}
	Light.
	↑ ↑ _____
mother	((looks toward light))
	___↑ ↑ ↑ ↑ ↑ _____
infant	point {to ceiling light} ((looks to father))
	_↑ ↑
father	(nods)
	Yes.

(1;0) (5:1: 22-29)

In example (6.4.1.3.1) the family are sitting on the floor playing with an assortment of toys. The mother picks the infant up and places her on her lap, facing her father. The mother then points to the father as the father waves within the infant's peripheral vision, and, gaining her attention, signs that the LIGHT is on. The infant repeats the sign and points upward at the ceiling light, to which her mother responds by looking upward. The infant again points the direction of the ceiling light and then looks to her father, who nods his agreement with her.

In example (6.4.1.3.1) on the previous page, the child is seated on the mother's lap. Although, in this instance, the child was very close to both parents, the wave appeared to be used by the father as a polite way to direct the child's attention from the mother to himself. Rather than using a more direct strategy of touch he uses a passive means to gain the child's attention, a 'softer' interruption of the child-mother existing focus of attention. The waving strategy does not appear to be used by parents until the child is able to sit up unassisted, and has also developed the ability to grasp an object. Waving seems to begin when the parent wants to direct the child's attention away from an object the child has grasped, in order to remove the object from the child or replace the object with a substitute. In the above example (6.4.1.3.1) it is used for the purpose of a polite interruption to the child's existing focus of attention on another addressee. This may be an intended strategy, or may be used incidentally for this purpose (Littleton 1996, 1998a).

Parents in these data begin to use the waving strategy at a later stage of the infant's development (i.e at approximately 1;0), than the strategies of touch and vibration which they begin to use while the infant is much younger (i.e., approximately 0;5 to 0;6 months of age). However, this seems to reflect the earlier-mentioned adjustment of strategy in accordance with the developmental abilities of the child. The waving strategy seems to begin when the child is capable of independent movement and begins to wander away from the parents. The child's mobility enables a distance to occur between the child and the parent, that reduces the effectiveness of earlier strategies to gain the child's attention, whilst the waving strategy enables the parent to establish effective communication to the child across this distance.

As is the case for adult strategies, children also use waving to gain attention. It appears from these data, however, that children employ this strategy predominantly in situations of close proximity to their parent, rather than at a

distance as in adult usage. The function of this strategy is the same as that for adults. By waving the hand within the visual range of the potential recipient the child seeks their attention as a recipient of communication.

(6.4.1.3.2)

	↓ ↓ ↓ ↓ ↓ ↓ ↓
mother	((scraping beaters))
	↓ ↓ ↓ ↓ ↓ ↓ ↓
child$_B$	((waves at mother)) WAIT CHOCOLATE
	Wait, the chocolate.
	((tries to get recipe book from child$_A$))
mother	NO FIGHT
	No fighting.

(A 1;11 & B 3;4) (5:5:10-12)

In example (6.4.1.3.2) the mother and two children are making a cake. The mother is standing one side of a free-standing kitchen bench and the children are facing her, standing on chairs on the opposite side of the bench. The mother is scraping a butter and sugar mixture off the beaters and into a bowl. Child$_B$ waves at the mother, who gives her attention almost immediately. The child tells the mother to wait before doing any more, reminding her about the chocolate; she then tries to take the recipe book from child$_A$ and a struggle ensues. The mother tells the children not to fight, the book is retrieved, the recipe reviewed and the cake-making proceeds.

As with the strategy of touch, data examples in this corpus illustrate that children do not employ the waving strategy to gain attention until they have reached the stage in which they can move about independently and understand that waving within their parent's visual field may act as a summons to initiate communication. Although these data have limited instances of children using this strategy it appears that use of the waving strategy occurs at approximately 3;0 years of age.

The instances of this strategy in these data occur in situations such as that illustrated by (6.4.1.3.2) above, where the child is standing on a stool facing her mother, resulting both in close proximity to the parent and the child being closer to her mother's height. It appears that, because of such positioning, the child is able to reach and wave easily within the mother's facial or visual field. In typical

circumstances the relative height that a child of this age can reach with their wave is as follows: in the region of the lower body of a parent who is standing; if the parent is sitting on a chair, just below the height of the parent's eyes: or if the parent is seated on the floor, slightly above the parent's head. So, sitting, the parent's positioning is not as conducive to the waving strategy, but is more accessible to other non-verbal means of attention-getting, like touch or vibration. It is probable that the waving strategy is employed by the child in example (6.4.1.3.2), on the previous page, because she can easily reach her hand within the field where her mother's visual attention is focussed.

6.4.1.4 Reorientation

The attention-getting strategy of reorienting the child is one by which the parent moves either the child or part of their body, or the parent reorients their own body in some way that opens up the visual channel: that is, the parent will reorient themselves or move the child. Example (6.4.1.4.1), following, shows the mother gently turning the infant's head toward herself, so that the infant's visual focus is directly attending to her. This movement occurs in order to focus the child's attention toward the adult, without requiring the child to do anything other than reallocate their attention toward the adult's communication.

(6.4.1.4.1)
mother ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←
((lays infant on change table places hands under infant's
← ← ← ← ← ← _____ → →
head and moves infant's head)) ((taps infant on chest))
→ → → → → → →_____
BATH ((moves infant's head)) BATH
(0;5) (10:2:7)

In example (6.4.1.4.1) the mother has lain the infant down on the change table to remove her clothes for bathing. She places both hands beneath the infant's head which is turned to the left, and turns it so that the infant is facing her. The mother then pats the infant's chest and signs BATH. The infant then turns her head to the right, the mother again picks up the infant's head and reorients the infant's head toward her and re-signs BATH. The mother then continues to sign to the infant as she undresses her ready for a bath.

It appears from available examples in these data that, prior to a child reaching the stage of physical development at which they display intentional self-movement (cf. Piaget 1970), the parent employs the reorientation strategy to gain the child's attention. Further, as with the previous strategies, the parents adjust their use of the reorientation strategy to the capabilities of the child, such that, with the infant incapable of intentional movement, the parent guides the reorientation of the child's head, and/or body, to ensure the child's visual attention and access for participation. As the child becomes older, approximately 2;0 to 3;0 years of age, in most instances the parent leaves the child to reorient themselves or relocate their attention independently. It is only in certain circumstances, such as for ease of communication, that the parents reorient themselves, or in cases when the child is highly distracted, or not able to understand that the position they are in may cause difficulty for communication, that the parent will reorient the child to facilitate gaining the child's attention.

6.4.1.5 Waiting

Waiting to gain the attention of an addressee appears to be a strategy predominantly employed by children in these data. As illustrated in the following example, (6.4.1.5.1), the child will face the parent, holding their eye gaze toward the parent's face, and wait for the parent to shift their visual attention toward the child. Once this attention has been shifted to the child, and the child is aware of the reciprocal attention (Bruner 1975, 1980), the child then proceeds to communicate.

As with the previously mentioned strategies the use of the waiting strategy is dependent upon the child having developed an understanding of the function of attention-getting strategies, and a level of independent, intentional movement. The children in these data appear to reach this stage of development and begin to use the waiting strategy at approximately 2;4 to 2;10 of age.

(6.4.1.5.1)

mother	((taps child)) WANT ONE point {to black shoes}
	Do you want those ones,
	BLACK ONE point {to purple shoes} GOOD
	or those ones? Good.
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ _____
	((picks up basket full of socks shows child)) SOCK
	Which socks?
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ _____
child	((chooses socks - holds socks out - gestures with socks))
mother	PRETTY YES
	Yes, those are pretty.

(2;4) (2: 1:148-150)

In example (6.4.1.5.1) mother and child are in the bedroom. The child is being dressed for the day and has been asked by her mother to choose the shoes she will wear. Once that is established the mother picks up a basketful of socks and tells the child to pick which pair of socks she would like to wear. The child picks the socks she wants, then, realising the mother's attention is elsewhere, stands with her eye gaze fixed on her mother's face, waiting until her mother's attention is redirected toward her. Once the mother's attention is gained the child gestures with the socks to show her mother the choice she has made, and the mother responds by agreeing with her that her choice of socks is PRETTY. The mother then finishes dressing the child for the day.

The waiting strategy appears, in these data, to be employed mainly by children. It seems that they have developed an understanding that a visual-manual language is reliant upon face-to-face communication, and, as such, simply wait for this channel to open. That is, rather than actively seeking the adult's attention by touch, waving or vibrations, they direct their eye gaze to the potential interlocutor's face and passively wait for the attention to be redirected to themselves. Additionally, this may be an example of politeness. The child may have learned, or been taught that it is good manners to wait for an adult to finish what they are saying before speaking, and, as such, the child is waiting for their turn (Littleton 1996, 1998a). As can be seen in the above example, as soon as the child's waiting eye gaze is reciprocated and the child knows the visual channel is established they then communicate what they wish.

6.4.2 Attention-directing

The following sub-section presents examples of attention-directing strategies used by the speaker for the purposes of identifying, for an addressee, the objects, persons or events referred about which they wish to converse. As with the previous sub-section on attention-getting strategies, adult use of each type of attention-directing strategy will be examined first, as a model of competent conversational usage. This will then be followed by examination of children's usage of each type, in order to illustrate what the child learns about initiation of conversation using attention-directing strategy.

6.4.2.1 Pointing

One strategy used by adults to direct a child's attention to a particular referent is pointing. The adult will point, within the child's visual attention field, with the 'point hand' toward a person, object, or location within the immediate environment. The adult's eye gaze may either: be directed with the point to the referent and then back to the child during the point; or may be focussed on the child during the point, and break quickly from the child in the direction of the point, and back to the child. That is, the adult will both visually monitor the direction of the point and the child in order to cross-check that the child's visual attention is focussed on the direction and referent being indicated. Once a mutual focus of attention has been established by the directing strategy, the adult will then converse with the child about the specified referent. The pointing strategy appears to have the ability to explicitly specify to a recipient the location of, and intended communication about a particular referent.

From the following example, (6.4.2.1.1), and further examples in these data, it appears that when the child is an infant the parent uses the strategy of pointing for

directing the infant's attention to referents that are in close proximity to the infant, and within the field in which the infant's visual attention is already established. This is supported by the fact that there are no cases in these data in which parents point to objects at a distance. Further, it seems that the parent modifies the pointing strategy by pointing directly onto the referent, rather than using the point to indicate direction and/or general location of the referent. In example (6.4.2.1.1) the mother places her pointed finger onto the doll to ensure the infant's understanding of the referent of the utterance. It is probable that such adjustments are used by the parent in the child's early life to make the referent of the point more direct and explicit (Kantor 1982; Kyle & Woll 1994; Mohay et al. 1996, 1997).

(6.4.2.1.1)

mother

point {on doll} WHAT point {on doll} DOLL
What's this? *It's a doll*

point {on doll} DOLL point {on doll}
A doll *It's a doll*

((waves doll's arm at infant))

(0;5) (10:2:55)

In example (6.4.2.1.1) the mother has just completed changing the infant's nappy, and, as the infant lies on the change table, she picks up a doll and points on it within the visual range of her infant. She asks her infant what the object is, and then proceeds to name the object. The mother signs to the infant that this is a DOLL, points to the referent, with her finger tip resting on the referent and then repeats the sign DOLL and points on it again. She then grasps the arm of the doll and waves it at the infant. The mother finishes dressing the infant.

When the child is an infant parents in these data appear to use the pointing strategy on a referent already in visual range, to ensure that the referent of the potential communication is identified in a direct way so as to enable the comprehension of the referent by the child. Adaptations such as these familiarise the infant with the strategy from an early age, without requiring any direct participation from the

infant, such as eye gaze re-direction or head movement. As the infant becomes capable of independent movement pointing on appears to change to pointing to; that is, one strategy seems to decrease as the other increases. It is probable that a point to a referent is somewhat less explicit to a very young child, and thus the parent only increases the distance between the point and the referent as the child matures and is capable of independently following such direction. It may also be the child's ability for independent movement that necessitates the parent's adjusted use of the point strategy; that is, as the child matures their attention span becomes more susceptible to distraction, and their capability to make independent and intentional movement allows greater independence from their parent. Factors such as these may necessitate the parent's adjustment of the point strategy, in order to be able to effectively gain and direct the child's attention to a particular referent as a function of age and various stages of development.

The pointing strategy is also used by children when they wish to direct an adult's attention toward a particular referent. As with adult usage of this strategy, the child will point at a person, object, or location within the visual attention range of the adult in order to direct their attention toward it. The child also employs visual monitoring, in both the direction of the point and on the adult, for the purpose of cross-checking that the adult's attention is focussed on the particular referent being specified. Only when the child is certain that the adult's attention has been directed successfully do they begin to say what they wish to say.

The following example, (6.4.2.1.2), is one of the earliest instances in these data of an infant attempting to direct the attention of the parent to the object about which she chooses to communicate. It may be argued that the infant is simply reaching aimlessly in the air; however, the infant, after having her hand captured in her mother's, withdraws her hand and again reaches toward the object. Further, the

line of the infant's eye gaze corresponds, in both attention-directing attempts, to that of the direction of reach. As pointed out by Petitto (1990), in exploratory reaches infants do not visually seek for the adult to share the eye gaze. Additionally, Schieffelin (1983) notes that eye gaze direction also serves as an indicator of the intentionality of a child's utterance. It is probable, therefore, that in this instance the infant's reach was directed and intentional, and it appears that she was indeed attempting to direct her mother's attention toward the object through this strategy.

(6.4.2.1.2)

infant	point {to hanging plastic bear}
mother	ORANGE BEAR ((mother grasps infant's hand)) *The bear is orange.*
infant	((pulls hand away from mother's hand)) points {to bear}
mother	points {to bear}ORANGE BEAR ORANGE BEAR SWING *It's an orange bear.* *The orange bear is on a swing.*
(0;6)	(12:4:32-45)

In example (6.4.2.1.2) the infant is lying under an infant play gym on the floor. The mother is seated on the floor with her head bent forward, facing the infant. The infant fixes her eye gaze at, and extends her hand toward the orange bear. The mother, in the process of naming the objects the infant can see, coincidentally signs ORANGE BEAR. The mother then grasps the infant's hand with what appears to be the intention to clear the infant's visual range so that she can easily view the objects and her mother's face. The infant withdraws her hand, and again directs her eye gaze and reaches/points toward the orange bear. The mother, seeing the direction of the point, then names the object as an orange bear on a swing. Mother and infant then continue other play.

In general, examples in these data provide evidence that children do not begin to use pointing as an attention-directing strategy until they are capable of 'visually guided reaching' (cf. Piaget 1970), that is, until they have reached a stage of physical

development that enables them to both direct their eye gaze at, and reach toward a particular object, person, or location. According to McIntire (1977) and Boyes-Braem (1990), anatomical and cognitive constraints at first control the development of infant handshapes. Pointing and grasping are the functions most commonly served by the human hand, and, as such, are the first to develop. This development appears to occur quite quickly, with an infant's first recognisable attempt at directing their parents' attention to the referent being in the form of reaching towards an object. This behaviour appears in these data at approximately 0;6 months (e.g., 6.4.2.1.2), and is followed within a short period by a point which is very distinctive, at approximately 1;0 year of age. Additionally, it is probable that a further precondition for the emergence of the point strategy in children is an understanding of the function of this strategy as a means of directing their parents' attention towards specific referents, in order to communicate their needs or wants.

6.4.2.2 Showing

Another attention-directing strategy used by adults in these data is that of showing or displaying. In order to direct a child's attention to a particular referent the adult will show or display a particular object or referent for discussion, within the visual range of the child. While the parent is showing the referent they monitor the child's face to assess whether their visual attention is directed toward the referent. Once the parent has established that the child has focussed attention on the referent, the parent will then communicate what they wish to say. This strategy of bringing the referent object into the visual range, as opposed to pointing to its position at a distance, appears to be used with great frequency by parents in interactions with infants and young children. This attention-directing strategy does not require the child to follow direction to the referent, but simply to focus their attention on the referent brought to them.

(6.4.2.2.1)

	← ← ← ← _ _ _ _
mother	((shakes flower rattle))
	_____↓ ↓ ↓ ↓
infant	((grabs rattle and chews it))
	↓
mother	FLOWER+ PRETTY YELLOW RED FLOWER point {to rattle}
	It's a flower. A pretty yellow and red flower.

(0;6) (12:4:13-15)

In example (6.4.2.2.1) mother and infant are seated facing one another on the floor. The infant is playing with a small, pink, stuffed rabbit. The mother shakes the flower-shaped rattle within the infant's visual field, drawing her attention by showing her the flower. The infant grasps the rattle and the mother then tells her that it is a FLOWER, and then goes on to describe that it is a pretty, red and yellow flower. Mother and infant then continue to play.

In the above example, (6.4.2.2.1), the mother uses the show strategy to direct the infant's attention, initially, to a specific referent, the flower rattle. Once the infant's attention is directed toward the referent the parent describes characteristics of the referent (i.e., red and yellow flower). It appears that the adults in these data use the show strategy, initially, to direct the infant's attention to a referent normally already within the infant's existing focus of attention. When the child is approximately 1;7 to 2;0, parents seem to extend the show strategy by directing the child's attention toward a referent, then adding a further show or pointing strategy in order to make a particular part of a general referent explicit to the child. Unlike the previously mentioned point strategy, the parents do not adjust the show strategy for infants. It is probable that, due to the explicit nature of the strategy, which is simply a case of showing the child the referent and ensuring their attention is directed toward it, there is no necessity to adjust the strategy to aid an infant's comprehension. Further, it is probable that the extension of the parents' use of the strategy, to make a particular part or location of a referent specific as the child matures, is dependent upon the child's abilities; that is, their ability to move independently and intentionally and to maintain a certain attention span.

Children likewise use the attention-directing strategy of showing or displaying a particular referent within the visual range of the adult. As with the adult strategy, the child monitors the parent while displaying the referent to check whether their visual attention is directed toward it, and once this has been established a child will then say what they wish to say.

(6.4.2.2.2)

	↓ ↓ ↓ ↓ ↓ ↓ ↓ _ _ _ _ _ _ _ _ _ _ _ _ ↓ ↓
mother	((shows child$_B$ cow)) point {to puzzle board} COW, COW
	This goes here. *It's a cow, a cow*
	↓ ↓ ↓ ↓ ↓ ↓ _____
child$_A$	((places picture on mother's lap to show her))
	↓ ↓ ↓ ↓ _____
mother	((moves picture)) point {to picture} CHURCH
	It's a church.

(A 1;3 & B 2;8) (5:3:14-16)

In example (6.4.2.2.2) mother and child$_B$ are seated cross-legged opposite one another, with a puzzle lying on the floor between them. The mother is holding up pieces of the puzzle and helping child$_B$ to name them. The mother has just shown child$_B$ a cut-out of a cow and pointed to where it fits in the puzzle, then named it, when child$_A$ walks up to her right hand side. Child$_A$ shows her mother a picture by placing it on her lap in an attempt to redirect her attention toward the picture and away from the puzzle and child$_B$. The mother re-directs her attention to the picture, moves it so that both children can view it, and, pointing to the picture, names the object in it, CHURCH. She then turns her attention back to child$_B$ and continues her description of the cow, explaining to child$_B$ that milk comes from cows.

It appears from data examples, as in the previous example, (6.4.2.2.2), that children begin to use the strategy of showing an object between the ages of 1;0 to 1;3. In all examples found of this strategy in these data the children had developed the capability of independent movement, and were using the strategy to direct their parents' attention toward something of interest to themselves that they had found within their environment. Example (6.4.2.2.2) particularly shows the child asserting

her desire to look at something other than what the mother is suggesting, as she shows her mother the book about which she wants her mother to communicate with her. Child$_A$ in the example shows her mother a picture by taking it to her and placing it within the visual space established between her mother and sibling (i.e., Child$_B$) - indicating that she understands the necessity of displaying the referent within the visual range of the addressee, in order to direct their attention to, and elicit information required about an object or person. The ability of young children to draw an adult's attention to a topic to provide a context for a following comment has been noted in various studies of first language acquisition (e.g., Atkinson 1979; Keenan & Schieffelin 1976, 1983). As an illustration, a child may draw attention to the referent *car*, and then, having established the referent, comment with *it broken*. This topic-comment structure, as noted by Bates and MacWhinney (1979), has been found to be an integral stage of the child's pragmatic development; that is, the ability to raise a topic/referent in order to later comment upon it. Atkinson (1979) additionally suggests that the direction of attention, in order to comment about the referent of the direction, can also be achieved by paralinguistic gestures such as pointing and showing.

6.4.2.3 Sign

A further initiation strategy used by adults in these data is that of attention-directing sign. The adult will sign within the field of the child's visual range to direct their attention either toward a particular referent (i.e a directional sign), or to direct the child's attention toward the parent. The adult's eye gaze may either be directed using a directional sign such as LOOK to the referent and then back to the child, or remain focussed on the child during the attention-directing sign. This visual monitoring of the child's attention is a means of ascertaining whether their visual attention is being directed by the sign towards the parent, and/or the direction indicated.

(6.4.2.3.1)

mother LOOK BOOK WANT LOOK BOOK DEER+
Look at the book. Do you want to look at the book? A deer, deer

child ((reaches out and holds onto one side of the book))

(1;0) (8:1:26-27)

In example (6.4.2.3.1) the mother is sitting cross-legged on the floor facing her child, seated opposite drinking juice. The mother directs the child's attention with the sign LOOK toward a picture book she has just picked up, and continues by asking the child if she wants to look at the book with her. She then shows the child a picture of a deer and forms the relevant sign of DEER. The child reaches out and takes hold of one side of the book, and mother and child then look through the book together with the mother naming pictures to the child.

In example (6.4.2.3.1), above, the mother is using the directional sign, LOOK (see Figure 6.1 following). The sign itself is not a pointing sign, but is able to direct or orient the observer to a particular referent (Johnston 1989a). In the example the parents use the LOOK sign to direct the child's attention toward a particular referent in the visual field in which the child's attention is focussed, in this case specifically to the picture of a deer in the book the mother is holding. Further examples within these data show that parents also use HEY (see Figure 6.2 following) as an attention-directing sign. The sign itself is a colloquial sign intended to direct the attention of the recipient toward the signer; that is, HEY functions as an attention-directing device intended to signal to an addressee that their attention is required by the speaker, and to the speaker, and that a potential utterance will follow. In some of these data examples, in which HEY is used the child's attention is already focussed on the parent; however, it is probable that the function of this sign, rather than simply to direct the child's visual attention, is to ensure the child's attention is focussed on the following utterance. Attention-directing signs may not simply function to focus the visual attention, but may be adjusted by the parent to ensure the child's attention toward the salient features of a communication.

Figure 6.1 LOOK

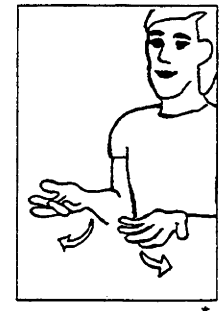


Figure 6.2 HEY*

Parents do not appear to use this attention-directing strategy with children under the age of 1;0, and it is probable that they do not begin to use this strategy until the child has begun to produce signs themselves, or demonstrated an understanding of such signs. It appears from the examples in these data that the attention-directing signs are employed to differentiate types of referent. For example, the sign LOOK (example 6.4.2.3.1) is used to direct attention toward a referent within the immediate environment, whilst HEY appears predominantly to be used to focus attention toward the signer. Further, as indicated previously, HEY may additionally be able to function as a way to indicate the importance of the communication following the attention-directing device, and, in doing so, further direct the child's attention toward an awareness of signing as a communicative activity.

Children, in accord with adult strategies, may use sign as a means of attention-directing. Similarly, children may sign within an adult's visual field to direct an adult's attention, to communicate something about a particular referent. The child's eye gaze may also be either co-directed with the sign, remain focussed on the adult during the sign, or alternate between the sign and the adult. Again, this eye gaze-monitoring functions as a means for the child to determine whether the adult's attention is located where the child is directing. Example (6.4.2.3.2), on the facing page, is one of the earliest instances available in these data of children using sign to direct attention. In this example the child uses the sign LOOK to direct the mother's attention to a particular referent outside the immediate environment.

* Figure 6.2 HEY is an illustration taken from Johnston (1989a), adjusted to show movement specific to usage of this sign for discourse purposes.

(6.4.2.3.2)

child	LOOK point {to sky} PLANE *Look a plane.*
mother	PLANE HAVE WHERE *Where is the plane?*
child	point {to sky} *There.*
mother	YES point {to plane} PLANE$_{+}$ BIG *Yes it's a plane.* *A big plane.*
child	BIG *Big.*

(2;4) (2:1:199-203)

In example (6.4.2.3.2) mother and child are outside in the backyard. The child is on a swing and the mother is at right angles to her, pushing the swing, and watching the child's face. The child draws her mother's attention by signing for her to look up to the sky at the plane. The mother looks, and then asks where the plane is. The child again directs the mother's attention by pointing to where she can see the plane. The mother confirms, yes, it is a plane she can see and then goes on to comment it is a big plane. The child repeats that the plane is big, and continues playing on the swing.

Although these data provide few examples of children using signs to direct attention it is probable that, although they both understand and productively use LOOK, children, as yet, have not learned to use HEY for the purpose of directing attention toward themselves and learned the importance of their own potential communications. It appears then, from these data, that children do not begin to use sign to direct attention until they are capable of intentionally directed self-movement, and are able to understand the function of sign in directing the attention of the adult. It also seems that children do not begin to use the strategy of signing to direct a parent's attention until they have begun to use signs for productive language, and understand the potential directive capacity of signs as an attention-directing strategy.

6.5 Discussion

Children's acquisition of communicative competence is necessary for them to be involved in successful communication. As demonstrated by Keenan and Schieffelin's (1983), model initiations are crucial in order for children to become involved in a conversation. Therefore, prerequisite to the child's ability to achieve successful initiation in conversation is their acquisition of the means to do so - attention-getting and attention-directing strategies.

Due to the visual-manual nature of Auslan, in order to communicate it is imperative that the participants in a conversation be looking at each other. This reliance on the visual channel for communication necessitates that participants have a way to gain and direct one another's visual attention to an object, person, location, or themselves in order to say what they wish to say. There are a number of initiation strategies which function as a means for both gaining and directing another's visual attention. Attention-getting strategies may include touch, vibration, waving, reorientation, or waiting. Attention-directing strategies may include pointing, showing, or using attention-directing sign.

It appears from these data that parents begin to socialise their children to the use of the initiation strategies from infancy. The strategies used by parents with children at an early age are, by nature, both explicit and direct, in that the referents used are predominantly ones within the immediate environment and that are already within the child's visual attention, and their only participation is to focus their attention on the referent indicated by the initiation strategy. To ensure the child's understanding and response the parent appears to adjust certain aspects of particular strategies that may create difficulties for the child's comprehension of the form, or function of a particular strategy. In the pointing strategy, for example,

rather than requiring the child to follow the direction of the point to the referent the parent will point directly onto the referent, requiring only that the infant attend to the referent being indicated (see example 6.5.1, below). A further example of such adjustment is that the reorientation strategy, in example (6.5.2) below, is used initially to orient the child's focus of attention toward the parent. Further, as in the below example discussed earlier, the parent may use the reorientation strategy to engender the correct response by the infant to a summons strategy, by orienting the infant's visual attention toward the speaker, and ensuring visual access prior to the following communication.

(6.5.1)

mother point {on doll} WHAT point {on doll} DOLL
What's this? *It's a doll*

point {on doll} DOLL point {on doll}
A doll *It's a doll*

((waves doll's arm at infant))

(0;5) (10:2:55)

(6.5.2)

mother ← ← ← ← ← ← ← ← ← ← ← ← ← ← ← ←
((lays infant on change table places hands under infant's
← ← ← ← ← ← → → →
head and moves it)) ((taps infant on chest)) BATH ((moves
→ → →
infant's head)) BATH

(0;5) (10:2:7)

Moreover, the parents in these data continue to modify aspects of initiation strategies that may create difficulties for the child as it matures. For example, in the use of the vibration strategy parents initially tap or hit an object continually until the infant's attention is gained; as the child matures and begins to associate the vibration with a summons, the parents reduce the hits to one or two. In all cases in these data, once the child begins to respond correctly to the strategies by intentionally focussing their visual attention where the speaker has indicated, parents will begin to modify the strategy toward the form of the adult-model.

Further, this reversion to the adult-model appears to occur as the child becomes capable of independent and intentional movement. For example, it is not until the children in these data begin to move independently away from their parent, that parents use waving to gain their child's attention. A further example is that of attention-directing pointing, in which parents begin to withdraw the point from directly on the object and begin to point to the object from a distance, requiring the child to follow the direction indicated by the point to the referent. It appears that all such parental modifications are tailored to the child's existing level of physical and cognitive development. Additionally, it is probable that in all cases modification of strategies engender in the child the knowledge of the types, processes and function of each initiation strategy.

It appears, therefore, that both introduction of, and adjustment to attention-getting and attention-directing strategies by the parent seems to be guided by the child reaching and exhibiting particular developmental abilities. This tailoring enables the parent not only to aid the child's understanding of both performance and required response to each strategy, but also to provide a conducive environment for the child's comprehension and initial productions of initiation strategies.

At the same time children are developing an awareness of different strategies for getting and directing attention, they are being socialised as to the nature of the visual channel and its necessity in visual-manual communication. Throughout these data the parental eye gaze constantly provides a model of the required visual attention in attention-getting strategies. In example (6.5.3), on the facing page, in which the child is directing the mother's attention, the mother's eye gaze is focussed on the child's face, follows or tracks the direction of the point strategy, and then returns directly to the child for the subsequent communication.

(6.5.3)

child	point {to shelf}
mother	WHAT
child	point {to shelf}
mother	WHAT point {to shelf} *What do you want from there?*
child	BLANKET SLEEP point {to stuffed toys} point {to shelf} COME *A blanket for them, from there, to sleep.*
mother	BLANKET
child	(nods) point {to mother} point {to shelf} (nods) *Yes, you get it from shelf.*

(2;4.1) (6:3:39-45)

It appears in these data that deaf parents' constant visual attention during children's production, and the model provided by parents' initiations in maintaining and monitoring the child's visual attention, not only socialises deaf children to the visual requirements of directing attention, but also in providing attention when directed.

Although these initiation strategies appear to function primarily to gain or direct a child's attention toward a referent, in order to communicate something about it, they also appear to direct a child's attention to communication as an activity. In the example below, (6.5.4), the eye gaze line indicates that the child's attention is already focussed on the parent; however, the parent still initiates the communication with the attention-directing sign HEY, and again, later in the communication, while the child's attention is fixed on the parent. It is probable that examples of usage such as this are a means to direct the child's attention toward the communication, rather than the parent referent to whom they are already attending. It appears that this direction of attention on the upcoming communication functions to facilitate the child's comprehension that what is about to be signed is itself the important part of the communication. It seems that not

only does this reinforce the function of initiation strategies as a means of communicating something a person wishes to say, but it may also direct the child's attention, and aid their understanding that sign itself is an important activity in the process of communication.

(6.5.4)

mother	HEY NOT FINISH *Hey, you're not finished.*
child	↓ ↓ ↓ ((picks up object))
mother	HEY LEAVE point {to object} FINISH QUICKLY *Hey, leave that and come and finish your breakfast quickly.*

(2;10) (2:4:117-119)

Although these data show evidence of reciprocal use of most initiation strategies in adult-child/child-adult interactions, both reorientation and waiting as attention-getting strategies appear to be predominantly adult and child initiations, respectively.

Reorientation as a form of adult attention-getting makes use of physical manipulation of self, or other, toward the initiator. It would be understandable if this was found to be a purely parental style, on the basis of the physical limitations of a child to bodily move their parent. However, this notion cannot explain why the children in these data do not seem to even attempt to move their parent, for example, by turning the parent's face toward them to gain the parent's attention as is evident in parental usage of reorientation in the example (6.5.5) on the facing page. Perhaps, as suggested by Ochs and Schieffelin (1995) of hearing mother-child interactions, the lack of production of this particular strategy by the deaf children in these data may be a reflection of their understanding of this strategy as a sociocultural resource used for displaying social status, relationships, or other situational dimensions.

(6.5.5)

mother	BUTTER *We need butter*
child	points {into refrigerator} FOOD *There's food in here*
	→ → → → → → → → → → → → → → →
mother	points {into refrigerator} ((reaches into refrigerator takes
	→ → → → → → → → → → → → → → →
	out container of butter)) ((places her hand on child's face
	turning it toward herself)) ((shows the butter to the child)) *Here's the butter*
	COME *Come here*
	→ → → → → → → → → → →
child	((turns back to look inside the refrigerator))
	→ → → → → →
mother	((places hand on the child's cheek and turns child's head to
	her to show the child the butter container)) *Here's the butter*
	→ → → → → → → → → → → → →
child	((turns back toward the inside of the refrigerator))
	→ → → → → →
mother	((places hand on child's cheek and turns child to face her)) FINISH *We've finished in here*

(3;4.1) (5:5:308-314)

Interaction between children and adults has been found, in previous research (e.g., Camaioni 1979; Mueller 1972), to be asymmetric in nature; that is, conversation between adults and children reflects a mature-immature type of relationship. This asymmetric dimension is not only a function of age, but of the quantity and quality of the interlocutors' knowledge of the world. Thus, in an adult-child interaction the child is only able to share a small part of the adult's knowledge, and, as such, is the inferior in this relationship. Further, asymmetric interactions correspond to different social situations, such as the formal situation of teaching where the adult exhibits pedagogic behaviour toward the child (Camaioni 1979). It is probable, therefore, that the use of reorientation by adults in these data is a reflection of the asymmetry of power between the child and their parent. The children are being guided by the adult's behaviour, which is structured toward controlling or extending the child's knowledge of certain language behaviours. Parents use the

reorientation strategy to guide the child toward the knowledge that, in order to communicate in Auslan, it is imperative to gain the potential interlocutor's visual attention. It becomes probable then, that reorientation is used by the parent in order to facilitate ease of communication for, and with the child, and it also functions to instil in the child the knowledge of the visual-manual nature of communication in Auslan. Further, due to the aspect of familiarity of a parent with their child, it is probable that use of the reorientation strategy is pertinent only to familial situations.

The waiting strategy, in which the child uses a fixed eye gaze toward the parent and waits for their attention, is probably linked to the child's developmental knowledge of the nature of their language; that is, the child has come to understand that their language is visual-manual, and, as such, requires the visual channel to be open in order to communicate. The child appears to have developed the understanding that unless the visual attention is reciprocated communication cannot occur. For example, within these data, as reflected in the example (6.5.6), below, children use the waiting strategy to passively gain their parents' attention.

(6.5.6)

	← ← ← ↓ ↓ ↓ ↓ ↓ ↓___
child	SPRAY COMB point {to mother}
	Spray and comb my hair
	_____ ↓ ↓ ↓____ ↓ ↓ ↓ ↓ ↓
mother	NOW MUMMY EAT BREAKFAST
	Now mummy's going to eat breakfast
	↓ ↓ ↓ _____
child	((waits)) point {to mother then father - 'you over there'}
	Daddy is sitting in your chair
	_____
mother	I SIT point {to father's chair} NOT MATTER CHANGE SIT
	Sometimes, I sit there, but it doesn't matter where I sit
	_____
	point {to chair seated on}

(2;10) (2:4:216-219)

As can be seen in the above example showing the parent's eye gaze line, as soon as the child's waiting eye gaze is reciprocated and the child knows the visual channel

is established, she communicates what she wishes to say. Additionally, this strategy may reflect children's understanding of a sociocultural aspect of politeness (cf. Ochs & Schieffelin 1995). The child has learned that it is impolite to interrupt or disturb an adult otherwise engaged, and that it is appropriate to wait for an opportunity to gain the adult's attention in order to initiate an interaction (cf. Ervin-Tripp 1979). Whether or not this passive attention-getting strategy is maintained into adult conversation was not able to be ascertained from the present data, but it is probable that such an unobtrusive form of attention-getting is used in adult-adult communication. Goodwin (1981) notes, in examination of hearing adult conversations, that speakers may focus their eye gaze upon an intended recipient as a signal for engagement in conversation. Although, as illustrated by Goodwin's (1981) examination, eye gaze is not a necessary component for initiating hearing conversations, the evidence of usage among hearing adult-adult conversationalists extends the probability that waiting eye gaze is used as a deaf adult strategy to gain a potential interlocutor's visual attention.

An important part of learning about a visual-manual language occurs when the child becomes aware of the need for reciprocal attention. As shown in example (6.5.6) of the waiting strategy, in most cases throughout these data the children do not begin their communication until they have obtained their parent's visual attention and established that the visual channel is open. This awareness is further illustrated in the attempts by children to repair or re-initiate in situations where the parent's visual attention has not been gained by an initiation strategy. Re-initiations occur when either an unsatisfactory response to an initiation, or no response, has been received by the speaker. A re-initiation indicates that a response is sought and that the absence of a response is noticeable. Re-initiation functions, therefore, as an indication that the speaker is aware of the discourse expectations of their utterances (Ochs and Schieffelin 1983; McTear 1985). As noted by McTear (1985), re-initiations

are important developmentally, as they provide an insight into the child's ability to pinpoint the possible reasons why their utterance has failed to gain the parent's attention, and the means they adopt to remedy such instances. The child, in example (6.5.7), below, seems quickly to diagnose that lack of visual attention is the source of the problem, and so, as a remedy, uses a different initiation strategy (e.g., waiting) as a means of re-initiation.

(6.5.7)

	↓ ↓ ↓ ← ← ← → → → ↓ ↓ ↓ ↓ ↓ ↓ ↓
child	SULTANA point {in bowl} ((taps hand 3 x on table))
	I've got sultanas
	↓ ↓
	((begins eating again and scans father's face whilst eating))
	↓ ↓ ___ ↓ ↓ _____
father	((looks up and establishes eye contact))
	_____
child	SULTANA point {into mouth}
	I'm eating sultanas

(2;10) (2:4:58-60)

In this instance the child quickly established her father's failure to respond by monitoring her father's visual attention. The child's initiation strategies did not elicit her father's visual attention, and so she used the passive initiation strategy of waiting to monitor her father's visual focus. The child, on establishing that her parent's visual attention had become focussed in response to her waiting eye gaze, proceeded to communicate what she wanted, about having sultanas. This additional evidence of the children's awareness of reciprocal eye gaze as necessary to communication further demonstrates an understanding that, to communicate in Auslan, mutual visual attention must first be established.

To accomplish visual attention children must not only learn ways to secure the attention of the parent, but also develop an understanding that communication in Auslan is reliant upon the visual channel. It appears, from the above examples, that even at an early age (1;0-2;0) children are aware that by using an initiation strategy they may effectively gain and direct a parent's visual attention.

All initiation strategy use by children appears to be dependent upon their reaching a certain stage of physical development, that is, they must acquire the ability for independent and intentional movement. It is upon reaching this stage that children begin to use the initiation strategies. For example, touch appears earlier than the other strategies, and this is probably due to the fact that visually-guided reaching is one of the first intention-directed movements in the developmental stage of independent movement (Piaget 1970). The strategies of touch, pointing, and showing appear to be acquired initially (i.e., between 1;0 to 1;2), followed by that of vibration (i.e., approximately 2;4). The strategy of waiting also appears at around the same age as vibration (i.e., approximately 2;4), however, it is probable that, due to the passive nature of the strategy, children acquire and use this earlier than instances observed in these data.

At a later stage, when children are between 2;0 to 3;0 years of age, they become aware that sign itself is an instrument by which they can achieve this direction of attention and mutual communication. Attention-directing signs begin to be productively used by children by approximately 2;4 to 2;10. It is probable that this strategy is not used earlier because the children have not developed the productive capability to do so. Additionally, the attention-getting strategy of waving, which appears to be the last strategy attained, may be constrained from earlier appearance by the inability of the child to produce the required handshape. The handshape required to produce a wave is termed a '5' or 'Spread' handshape and, according to Boyes-Braem (1990), is one of the last handshapes to come under control due to anatomical constraints. In summary, these data indicate that children acquire, and competently use, all the above-mentioned initiation strategies for communication with their parents in a relatively short period (i.e., by the end of the 3rd year).

According to Mueller (1972), the most powerful predictor of communicative success in young children is the addressee's attention to the speaker in the conversation.

Upon examination of the development of communicative competence in initiating conversation in Auslan it was found that the deaf children successfully formulated strategies to gain and direct attention. This was evident from the visual attention of the children's parents (i.e., the addressees) focussing on the child (i.e., the speaker) in response to such initiations. Furthermore, Prinz and Prinz (1985), in an extension of Mueller's (1972) notion, state that a further predictor of communicative success is the attentional discourse skills of the addressor. The deaf children in these data showed an increase in: sustained and prolonged eye contact with age (see Chapter 7, Section 7.3.4 Eye Gaze); understanding that visual attention of the addressee must be gained in order to communicate; and ability in, and use of attention-getting and directing strategies.

The initiation of Auslan conversations appears then to be structured in a manner parallel to that of spoken language. There are differences in the means by which Auslan addressors gain and direct their addressee's attention, in that deaf children exhibit a greater reliance upon visually and physically-oriented strategies. However, such differences reflect only the modality of the language's production and perception, and do not indicate a qualitatively different system of gaining and directing an addressee's attention. Quite simply, if you are not looking in Auslan, you are not listening.

7

Exchange Structure

> *If ... you are interested in communication, then you are interested in the exchange that is occurring.*
>
> (Omark 1981)

Introduction

An exchange is contingent interaction between at least two participants; contingent in the sense that the response of each participant can be shown to be dependent on the prior response of the other (Bruner 1983). Initiations open conversational exchanges, serving as the means by which another is made aware that the initiator is interested in, and available for a conversation. A response becomes necessary, however, if the speaking is to constitute an exchange. Conversational exchange involves more than simple spontaneous interchanges in which two persons alternately initiate and respond, it involves organised practices by which participants can speak, hear and understand. Exchange occurs through each speaker taking a turn at talk. What speakers do in their next turn is related to what prior speakers do in the immediately prior turn. Thus, in order to participate in conversational exchange a participant must know whether, when and how to respond to another's contributions. Conversational exchange is characterised by contingent and relevant responses, shared topics, and mutual frames of reference (Garvey & Berninger 1981; Sacks et al. 1974).

In an effort to understand the processes involved in the emergence of the skills which underlie the systematic exchange of talk in signed language, this chapter will initially outline conventional structures proposed for conversational exchange. An overview of the limited findings on discourse processes in sign language will follow, in order to establish the available knowledge of conversational exchange in a signed language. Following this, examples of deaf children in early exchanges of 'talk' with their deaf parents in Auslan will be examined, in order to uncover the skills underlying the development of the child's ability to participate in a signed conversational exchange. The focus of the chapter is the developmental forms and structures of conversational exchange in Auslan, and differences and similarities that may be found in systematic exchange as an artefact of language mode (i.e., signed or spoken).

7.1 Conversational Exchange

Conversation has been shown to be organised in various ways by the participants who co-construct it (Sacks 1992; Schegloff 1998). The most common basic sequence structure found, so far, in a conversation comprises an exchange of at least an initiation from one speaker and a response from another (Sacks et al. 1974; Stubbs 1983). In its basic, minimal form this unit is a joint construction of at least two participants, and the response of each member can be shown to be dependent on that of the other (Bruner 1983; McTear 1981; Stubbs 1983). Insight into describing the elementary units of exchange in the structure of conversational organisation has been provided by models proposed by Schegloff and Sacks (1973), Sinclair and Coulthard (1975) and Stubbs (1983).

Schegloff and Sacks (1973) initially used the concept of 'adjacency pair' to describe the basic structural units in conversational exchange. Adjacent, or paired utterances were found to be units which were organised such that: they consisted of two turns; speaker change occurred, that is when one participant produced the first turn the other participant produced the next; what occurred in the first part of the pair of utterances provided specifically for what occurred in the second; and, what occurred in the second part of the pair was related to the first, such that if the obligated second part of the pair did not occur, the absence was noticeable to the speaker. The relationship between the first and second pair part of adjacency pairs was thus proposed to be one of conditional relevance; that is, the first part of the pair imposed conditions upon what was a relevant response in the second part of the pair. Adjacency pairs were found to be important units for the structure of initiating (e.g., greeting-return greetings), maintaining (e.g., question-answer) and ending a conversation (e.g., closing) (Schegloff & Sacks 1973; Sacks et al. 1974).

Sinclair and Coulthard (1975), taking classroom discourse as a starting point, alternatively proposed the term 'exchange' to describe basic structural units of up to three moves. An exchange structure consisted of: an Initiation, which was a move that prompted another to participate in an exchange; a Response, which was a supporting move that conformed to the constraints and fulfilled the predictions of the preceding move; and a Feedback, which was an item(s) evaluative of what came in the second move (Sinclair & Coulthard 1975; Coulthard, Montgomery & Brazil 1981). Within each exchange structure there were three distinct moves. An Initiation (I) predicted a following Response (R), and an R occurred in response to a preceding I; I and R were therefore symmetrically related, with Feedback (F) functioning to close the exchange. Utterances within an exchange thus displayed compliance. Anything other than compliance signalled a new exchange. For

Sinclair and Coulthard (1975) exchange was "the minimum unit of interaction, relatable to a primary structure of initiation, response and feedback ...the rules of the exchange structure provide the essential organisation of utterances" (Sinclair 1980:122). Sinclair and Coulthard's (1975) notion of exchange was developed from classroom interaction, and reflects some elements of the institutional context of classroom discourse. However, fundamentally in accord with the notion that there were basic units of sequence, the exchange provided a further example of structure to sequences of talk.

Stubbs (1983), deriving his proposal of an exchange from the earlier work of Sinclair and Coulthard (1975), stated that an exchange comprised the minimal interactive unit, in which an Initiation (I) by one participant is followed by an obligatory Response (R) from another participant, and may optionally be followed by further utterances. This proposal was therefore closer to the segmental organisation of adjacency pairs proposed by Schegloff and Sacks (1973), as the third turn response becomes an optional element in the exchange.

Conversations rarely take defined steps, due to interruptions, pauses, errors, etc. They are, in fact, not well-defined unitary events, and thus no complete account of their sequential organisation is possible (Stubbs 1983). Insight into the common units of sequence structure are, however, granted by the concepts of adjacency pair (Schegloff & Sacks 1973), initiation-response-feedback (Sinclair & Coulthard 1975), and initiation-response (Stubbs 1983). If such models are regarded, as advised by Stubbs, as "a restricted set of possibilities which are generated by a more general exchange structure", such concepts are able to provide evidence of minimal units of structure or exchange, which in turn combine to form larger units of exchange or conversation (Stubbs 1983:146).

7.2 Conversational Exchange in Sign Language

Conversational exchange in spoken adult discourse has been described in considerable detail (cf. Ford & Thompson 1996; Sacks 1992; Sacks et al. 1974; Schegloff 1996). However, discourse analysis of signed language is a more recent development and very little is known about the structures of conversation. The research available to date has concentrated on aspects of the discourse structures of adult signed conversation in ASL, and, most recently, Finnish Sign Language (FiSL) (Roy 1989; McIlvenny 1995).

Discourse analysis studies of ASL are founded on Baker's (1977) observations of the conventional behaviours used in the regulation of turns in signed discourse. Baker (1977), supported by Hall's (1983) later findings on politeness in signed conversation, found that physical contact (e.g., touching, pointing, waving to another to gain their attention), non-manual body movement (e.g., body leaning forward/backward), head movements (e.g., head tilting left/right/forward/back), and facial behaviours (e.g., eyebrow, mouth, and nose etc. movements) were common conventions employed in the management of conversational turns. Additionally, both authors emphasised the importance of eye gaze in determining turns at talk, noting that those who lacked familiarity with eye gaze behaviours have difficulties with 'smooth' exchange, or experience confusion about turns in signed exchanges.

In a direct comparison of spoken and signed dyadic conversation, Wilbur and Petitto (1983:225) concentrated on topic in describing the "conversational contract" between native signers in ASL. Examining the flow of discourse topics using Keenan and Schieffelin's (1976) dichotomy of topic incorporating and collaborating,

a spoken language categorisation system, they found that sign language evidenced multiple devices to accomplish turn behaviours and a conversational contract between participants as to the initiation, maintenance and regulation of turns in an exchange. Wilbur and Petitto (1983) concluded from these findings that ASL conversations were structured in ways parallel to those reported for spoken conversation. However, in a more recent discourse comparison of signed and spoken conversation, McIlvenny (1995:145) stated of FiSL that the systematics of turns in signed exchange are "managed in particular and novel ways in and through the lived-in visual-spatial modality". He found that the visual modality of sign language embodied constraints and resources which clearly influenced the organisation and accomplishment of signed exchange. The fundamental constraint on interaction and participation is that of the restrictions of eye gaze, in that talk must be accomplished *in situ* with the resources of hands, face, body and eyes. A signer cannot participate in a conversation if others are not looking. Spatial configuration of participants is possibly problematic for signed conversation, with each participant needing to be visually accessible to the talk in progress. Although the consequence of the visual-manual modality of sign may 'leak' into the management of sign exchange in terms of resources and constraints of talking with eyes, hands and bodies, as McIlvenny (1995) notes, both spoken and sign language conversation are managed with the same resources and with the same constraints.

As pointed out by Bruner (1983), certain processes in prelingual interactions "remain invariant (e.g., turn-taking, role interchange) across the change into language and provide a centrally important source of continuity" (Bruner 1983:128). Examinations of deaf mother-infant communicative exchange in ASL (cf. Harris et al. 1989; Waxman & Spencer 1997; Swisher 2000) make particular mention of possible contributors to the development of adult exchange behaviours. These

authors posit that certain components of deaf maternal behaviour, such as variability and redundancy of attention-getting strategies (e.g., tapping, waving), sign motherese (e.g., sign repetition), the processes of joint attention and attention switching, and the physical rhythms of interaction, may foster the deaf child's development of exchange structures. Further, Gregory and Mogford (1981), reviewing aspects of preverbal behaviour in both deaf and hearing children, speculate that early dialogue and interactive features developed in the prelinguistic period (e.g., establishing turn-taking, joint reference and anticipation games) may contribute to later linguistic development. They suggest that the facility deaf children are shown to have with later sign language exchange does not rest solely with language skills *per se*, but with their early development of communication skills and the structure of early communicative exchanges. Although analysis is still in a preliminary stage anecdotal evidence suggests that, by the time the deaf child is between 2;0 to 3;0 years of age, "interaction between deaf children and deaf mothers is often characterised by remarkable synchrony and fluidity" similar to that found in adult exchanges (Swisher 2000:23).

Prinz and Prinz (1985) described discourse development of deaf children during dyadic peer interactions in ASL. The children (aged 3;10 to 11;5) were found to acquire appropriate discourse strategies comparable to those used by hearing children in spoken conversations, and approximating those of deaf adult signers, to various degrees. The deaf children were found to be similar to hearing children in the development of their abilities to initiate, maintain and terminate topics using techniques such as topic-marking and topic-chaining devices used by adult speakers. Further, deaf children appeared gradually to acquire turn-taking skills (e.g., timing and overlapping patterns between conversational turns) and remedial tactics following interruptions (e.g., repetition of signed utterance or exaggerations

of size, shape or movement of a sign), used by older deaf children and adults in conversational interaction. Additionally, it was found that patterns of eye gaze usage (ie. rapid, sustained and prolonged) by the deaf children in signed conversation achieved successful initiation and maintenance of conversational exchanges. The results of Prinz and Prinz (1985) evidence that deaf children's ability to achieve coherence and relevance in signed conversational exchanges developed over time, as shown by an increase in skill to adhere to topic handling, turn-taking, remediating interruptions, and initiating and maintaining attention.

The findings of the few studies on sign language, so far, provide some evidence that signed conversations appear similar to spoken conversation in a number of aspects (e.g., topic incorporation and collaboration, turn-taking sequence). Despite the findings that modality has no relevance to certain aspects of conversational structure, the use of the visual mode does have relevance in the exchange of information. As Goodwin (1979, 1981) has shown of spoken language, eye gaze is an important feature in the structure of discourse. For sign language it is an essential feature of structure. Further, the above mentioned studies suggest that deaf children learn later adult exchange structure from early communicative exchanges. Hearing children have been found to learn language skills in the process of interacting with others in patterned ways, such as those provided in games, rhymes, picture-book reading, labelling, and questions (Peters & Boggs 1986). It is just such input and interactions which Bruner (1975, 1983) suggests provide the necessary contexts which guide language development conducive to forming skills in structuring conversational exchange, and which will provide the scope for the examination of Auslan conversational exchange.

7.3 Analysis of Auslan Conversational Exchange

This section will investigate the systematic development and structure of exchange in Auslan using instances of deaf mother-child communicative interactions. It will particularly concentrate on the continuity between prelinguistic and later linguistic behaviours, in particular deaf mother-child exchanges of games, rhymes, naming and questions, and eye gaze patterns suggested by previous literature to foster the development of conversational exchange. The similarities and differences used in early signed and spoken conversational exchanges will be considered, in order to establish if such behaviours are amodal or mode specific.

7.3.1 Games and Rhymes

It is during early interactions with parents in the prelinguistic stage that infants learn the behaviours of conversation. Early games provide a framework for language through their introduction of aspects of conversational exchange (Folven et al. 1985; McTear 1985). Games such as peek-a-boo; hide and seek; and give-and-take, in which an object is passed from mother to infant or from infant to mother, involve simple and recurrent joint behaviours (Bruner 1977; Ninio & Bruner 1978). Mother and infant each participate in a predictable pattern of alternating behaviours, reflective of social interaction and exchange. While the infant is still prelinguistic, it is the mother who imputes the infant's behaviours as responses with meaning (see Chapter 5: Motherese). When a pattern of behaviours, such as a game, is repeated consistently with standard actions and formats it provides a framework for the infant. Since the possible responses or meanings of the format are restricted, the patterns presented and the responses expected are predictable. The infants are then able to begin to participate by emulating the simple responses that have been modelled repeatedly for them within this format (Camaioni 1986; Gregory & Mogford 1981; Littleton 2000; Trevarthen & Marwick 1986).

Games, by their structure, model basic characteristics of conversational exchange. The structure of a game, typically, has a beginning (i.e., turn initiation), a middle (i.e conduct of turns) and an end (i.e., turn termination). Each participant in the game is ascribed a role, with each taking a turn at initiating and responding (Trevarthen & Marwick 1986). The participants are involved in a shared focus, and so, the behaviours of each participant can and are expected to influence those of the other (Bloom, Russell & Wassenberg 1987). Early games, therefore, give an infant a model of approved forms of social interaction, because games are one way that children learn what behaviours are socially approved and acceptable, and what behaviours are not (Bruner 1977, 1983; Garvey 1984). Example (7.3.1.1.), on the facing page, typifies the structure of early games played by deaf mother-infant dyads in these data.

As illustrated in example (7.3.1.1), facing, several of the deaf mothers in these data played a game with their infants, in which they stacked coloured cups or blocks. The coloured cups were stacked according to size or colour, and the infants were encouraged to knock down the stack. Joint constructing, such as building a tower and knocking it down, is often able to provide a predictable sequence. In this case (example 7.3.1.1), the shared focus of the mother and infant was the coloured cups. The beginning of the sequence is the stacking of the cups into a tower, the middle is the finished tower being knocked, the end is the tower falling and the laughter. Each participant's role is ascribed, the building of the cups tower is the initiation, the knocking down of the cups and the laughter the response. The mother in this example provides both the initiation and most of the responses for her infant, except the shared laughter. In the second instance of the cup tower being rebuilt, the mother again initiates the turn, however, both parts of the response turn are then taken by the infant when he knocks down the tower and laughs in delight. The game for the infant "occurred in a highly familiar situation in which actions formed part of a predictable sequence" (Harris et al. 1983:27); as such, the actions

and responses in the game were highly predictable from the context. It is just such well practised interactional rituals and the highly predictable nature of the game that enables the child to take an active role (Bruner 1983; Garvey 1984; Gregory & Mogford 1981; Moerk 1983).

(7.3.1.1)[1]

mother ↓ ↓ ↓ _ _ _ _____
((picks up coloured cup shows infant)) WHAT COLOUR WHAT
What colour is this?

_ _ _ _ _

In example (7.3.1.1) on the previous page, the mother is sitting cross legged on the floor and her infant is sitting opposite with his legs extended. In the space between them on the floor there are a number of coloured cups, the mother picks one up shows it to the infant and asks him what colour it is. The mother places the cup on the floor and then answers her own question by, initially, slowly and clearly signing RED, and then repeats the colour RED at her normal signing speed. She then places the cup on the floor in the space between herself and her infant. The mother then repeats this process picking up cups, asking or stating the colour, and then stacking each cup onto the existing cups on the floor. She then points out to the infant that the cups have made a building, and knocks the tower of cups over - as it is falling she signs that the building is falling down. The infant removes the bottle from his mouth and laughs with delight. The mother asks if they should build the cup tower again, and quickly gathers the cups and re-stacks them on the floor between the infant and herself. The infant, holding his bottle in his left hand, reaches out with his right hand and knocks down the tower. As the tower falls he leans his body in the direction it has fallen. His mother then signs to him that the building has fallen over - asking whether they should build it again. Mother and son continue to play with the coloured cups, stacking them up and knocking them over until the infant tires of the game.

Traditionally, cultures supply for mothers a range of songs, rhymes and nursery chants which are made up of appropriate vocal lines which usually are accompanied by patterns of synchronous action (Trevarthen & Marwick 1986). Progressive rhythmic games provide a pattern, with a strong beat, clear and simple phrasing and predictable climactic result or 'surprise' (Bruner 1983; Moerk 1983).

Example (7.3.1.2), on the facing page, shows mother and child playing a traditional Anglo-cultural sound play game (i.e., nursery rhymes) of 'This Little Piggie'. Interestingly, deaf mothers in this data played sign versions of traditional Anglo nursery rhymes - particularly ones with tactility and kinaesthesia. In the case of 'This Little Piggie', each toe is denoted as a pig and gently grasped and wiggled back and forth. The climax to the game is when the last little piggie runs squealing home, denoted by the action of fingers tickling gently from the foot, up the body,

and tickling under the arm. In this signed example (7.3.1.2) the only traditional element missing is spoken words - the vocal component. The game's essential nature is still represented in the signed rhyme. It still involves: strong rhythmic behaviour; predictable sequence and action; repetition of lexical items (e.g., *this little piggie*); intonation contours, stress patterns and tempo; and the accompanying laughter. The difference is that the visual and tactile elements of the game are exploited, enabling the deaf child to strengthen sensitivity through play with touch and sight, and transfer it later to signed utterances (Kyle & Ackerman 1990; Moerk 1983; Swisher 2000).

(7.3.1.2)

mother ↓ ↓ ↓ ↓ ↓ ↓ ↓ _____ _ _ _____ _ _ _____
((touches child's foot)) WANT PIG PIG WENT SHOP PIG STAY
Do want to play pig? This pig went to the shop, this pig stays home,

_____ _ _____ _ _ _____ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
HOME PIG HAVE ROAST MEAT PIG HAVE NOTHING ((tickles
this pig has roast meat, this pig has none
↓ ↓ ↓ ↓ ↓
child's foot))

child ↓ ↓ ↓ _____ ↓ ↓ ↓
@ @ @ @ @ ((child gives mother other foot))

mother _____
MORE+
Do you want to play it again?

child ↓ ↓ ↓ ↓ ↓ ↓
point {to her foot}

(2;4) (2:1:112-115)

In example (7.3.1.2) mother and child are in the child's bedroom, playing. The child is seated at the head of the bed with her legs out in front of her, and the mother is lying on the bed leaning on the wall at right angles to the child. The child is occupied with a stuffed rabbit. The mother reaches forward and touches the child on the foot to gain her attention. The child immediately lifts her head and establishes eye contact, upon which the mother asks the child if she wishes to play the game 'This Little Piggie'. On completion of the first game the child extends her other foot, and the mother enquires upon eye contact if she would like to play the game again. The child agrees by pointing toward her foot, and the game is again played with that foot.

Games and rhymes engage children in simple and recurrent joint activity and mutual play, in which established patterns of interaction are worked out mutually. The rhythmic behaviour of games, that enters into most child-directed utterances to varying degrees, is one of the first exchange procedures that children are exposed to. Each game provides an unambiguous set of actions and expectations, and an opportunity to cooperate in talk. In other words, the child learns that there are appropriate responses to particular, eliciting behaviours (i.e., initiation - response), and that there is a predictable sequence and pattern to interaction. Over time the child learns to reproduce simple systematic routines and, upon this established learning, more and more advanced communicative signals are able to be attached (Keenan 1974; Moerk 1983 Ninio & Bruner 1978; Scrogg 1983).

7.3.2 Picture Book Reading

Early models of exchange are also provided by picture book reading. Joint attention to the activity of reading, and discrete turns in the reading cycle, very strongly conform to the structure of conversational exchange. According to Ninio and Bruner (1978), the book-reading situation, in its earliest form, has the characteristics of a simple and recurrent joint action format, consisting of three ordered elements. The three-step routine consists of an attention device, a query, and a label. The parent may go through this routine, either with their child's passive attention and minimal participation, or with the child taking a more active part in the routine (Ervin-Tripp & Miller 1977; Maxwell 1984; Ninio & Bruner 1978).

The order of elements proposed within Ninio and Bruner's (1978) three-step routine is clearly illustrated in the facing example (7.3.2.1) of picture book reading. The first step of an attention device consists of the infant being shown the picture in the book. The second step, the query, consists of the parents' point onto the picture, with the third step, the label, being provided by the parents' sign for the referent picture (i.e., RABBIT, BIRD, FISH).

(7.3.2.1)

father	((displays picture book on his lap)) [point {onto picture of rabbit}]
mother	[RABBIT$_{++}$]
father	[BIRD$_{++}$]
mother	[point {onto picture of bird}]
infant	((brings full hand up to face, rests it beside mouth, and moves full hand slightly up and down - approximation of adult sign displayed))
father	[CLEVER BOY] ((turns page of book))
mother	[smiles, nods]
father	[point {onto picture of fish}]
mother	[((leans forward)) FISH {swimming motion toward infant}]

(0;8.3) (11:1:311-320)

In example (7.3.2.1) mother, father and infant are all seated on the floor. Father and mother are sitting on the right and left of the infant and the infant is sitting in a position where he is able to see both parents. The book is open in the father's lap facing the infant. The mother signs to the infant that the picture he can see is a RABBIT. The father at the same time points onto the picture of the rabbit. The mother then points to the picture of a bird while the father demonstrates the sign BIRD to the infant (see Figure 7.1). The infant then places his hand up to his mouth in an approximate imitation of the sign for bird (see Figure 7.2). The next picture displayed is of a fish and as the father points on the picture the mother leans forward into the mutual space between the three and 'swims' her fish sign toward the infant. Father, mother and infant continue looking through the book and the naming of each picture continues.

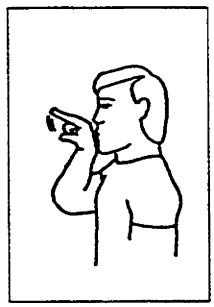


Figure 7.1 BIRD

Figure 7.2 BIRD (infant attempt)

Initially, as in the previous example (7.3.2.1), the parents' utterances pertaining to picture book reading were extremely limited, and consisted predominantly of a query point and the label for the object (e.g., point + RABBIT; BIRD + point; point + FISH). The referent of the query was established with the point, and the label of the referent was then provided in response to the query. In early interactions (e.g., 7.3.2.1) it was possible for the parents to undertake these three-step routines with minimal participation by the infant. In this instance (e.g., 7.3.2.1), the infant's participation is limited to visually attending to the routine, and an attempt to imitate the label provided by his father for the picture (i.e., BIRD).

This example (7.3.2.1) is of particular interest because both father and mother simultaneously provide both the point and label. It is physically difficult for a deaf signer to hold a book open and steady enough to allow another to visually fixate on the book, and physically impossible for an individual to point onto the book as they sign. They can point and then sign, or point and sign with one hand; but in order not to receive different stimuli as the book moves, and to maintain satisfactory eye fixation points, the book must be held steadily, the point made, and then the sign (cf. Maxwell 1984). This example illustrates a novel solution to this difficulty. The parents are seated either side of the infant, the book is displayed on the father's lap facing the infant, enabling the infant to see both parents' hands, face and body, and the picture book. The parents' strategy enables the infant to see the picture, point of reference and the sign label simultaneously. This may seem complex input, however, when hearing parents read they often display the book, point to the picture and state the name of the referent simultaneously. In these data, the majority of picture book exchanges occurred with just mother and child. In these exchanges the mother would display the book in a manner which ensured that it

remained steady, would point onto a picture and then provide the sign for the referent. However, quite frequently in these data, both parents are present and involved jointly in an exchange with their child.

Picture books provide an ideal means to achieve joint attention. Mother and child sit together, the book is displayed where both can focus on it, and so becomes the general context of shared focal attention. That is, the focus of attention for both participants is the book, and specific pictures within it (Moerk 1985). Joint attention and mutual focus underlie the establishment, maintenance and termination of communicative exchange (Budwig et al. 1986; Tomasello & Farrer 1986). In order to achieve joint attention both participants of an exchange need to focus upon the same content at the same time (Moerk 1985; Prezbindowski et al. 1998). Deaf children must learn to attain mutual visual attention and sustain visual attention with another if they are to receive linguistic input (Marschark et al. 1997; Swisher 2000). Eye contact is not only used to signal an intention to communicate in signed languages, but as a means to initiate, sustain, and terminate turns at talk (Baker 1977; Gallaway & Woll 1994). The deaf parents in these data show sensitivity to their children's visual needs in the handling of discourse, and in the management of the requisite switches of attention between themselves and the picture book. As in example (7.3.2.1), parents in these data would: ensure, through body positioning, that the child was able to view their parents' hands, face and body movements, and the referent (i.e., book) simultaneously; monitor the child's visual attention, ensuring the child did not need to change focus to look at the book, the point and the signed label; and, check for their child's visual attention prior to signed utterances, repeating and extending signs in order to ensure the child's awareness of linguistic input.

Once children begin to participate actively in picture book reading they are already familiar with, and have begun to establish, skills for turn-taking, initiating and responding to another (Ninio & Bruner, 1978; Snow & Goldfield 1983). As illustrated in example (7.3.2.2) on the facing page, as the child begins to take over one or more of the elements in the routine the mother's range of focus expands from simple labelling of pictures. The child in this example, competently using the earlier-mentioned book reading routine, now provides all three steps, using: an attention device of pointing to the picture of kittens, and again when she points to the empty bowl; a query, to ask where the kittens are; and labels the objects of the mother cat with her kittens. The mother's utterances have become less formulaic, and provide more new information and occur mainly only within the frame of her own turn. The mother introduces an element from the existing utterances (e.g., the kittens), and she then extends it (e.g., $WHERE_{+}$ $KITTEN_{++++}$ NOT FIND WHERE). The child then takes up an element of the preceding utterance of the mother (e.g., where are the kittens) and adds another element to this in her utterance (e.g., $WHERE_{+}$ point {onto following page} $KITTEN_{++}$ SLEEP). The mother takes up an element introduced by the child (e.g., sleeping kittens) and then asks the child to extend it (e.g., SLEEP WHY). In this sequence the utterances of each participant are related to the preceding utterance, each speaker is recognising the introduced elements of the other, and each is responding in an appropriate manner, such that each is taking an appropriate turn toward a jointly constructed conversational exchange.

In most instances in the facing example (7.3.3.2) the turn-taking proceeds smoothly, with the child passively attending during her mother's utterance, demonstrating an understanding of the reciprocal obligation of taking a turn at talk and waiting for a turn at talk.

(7.3.2.2)

mother	((displays picture book on toward child)) point {onto picture of mother cat with kittens}
child	MUMMY CAT BABY$_{+++}$
mother	(nods) KITTEN 5 point {onto picture of kittens} 1 2 [3 4 5]
child	[2 3 4] 5
mother	YES 5 ((turns page)) MUMMY CAT WALK {animal classifier *Yes five. The mother cat is walking, looking everywhere and*
	walking motion} WHERE$_{+}$ KITTEN$_{++++}$ NOT FIND WHERE *she can't find her kittens anywhere*
child	WHERE$_{+}$ point {onto following page} KITTEN$_{++}$ SLEEP *Where, where. there kittens sleeping*
mother	SLEEP WHY *Why are they asleep?*
child	((looks at picture)) point {onto picture of empty milk bowl}
mother	YES, ALL DRINK$_{+++}$ FULL SLEEP *Yes, they've drunk up all the milk and have gone to sleep*

(3;0.3) (1:3:37-45)

In example (7.3.2.2) mother and child are seated at a child-sized table and chairs. The mother is seated facing her child; due to the size of the furniture her knees are well above the edge of the table. Using this to her advantage she leans the story book they are looking at against her knees, open, facing the pages toward the child. Mother and child continue reading the story book.

Of interest in the above example (7.3.3.2) is the instance where the child, rather than remaining passive during a particular turn, enters with the utterance 2-3-4-5, even though this information was already being provided within the frame of the mother's utterance. The redundant offer by the child may show her trying to fulfil the obligations of the turn. The mother has just pointed to the picture of the kittens, one at a time, and is counting to indicate how many kittens are shown in the picture. The child, in using the model of the numeric signs that her mother is using,

may be attempting to take the turn even if it is only by echoing her mother's response. The child may be trying to take responsibility for the turn as her own, rather than allowing the mother to provide the response for her. Thus, the child may be attempting to more actively participate in the joint construction of the conversation. As noted by Ervin-Tripp and Miller (1977), there are similar occurrences of redundant information being offered in hearing interactions about picture book reading. They posit that, by entering the exchange when the offering is redundant, since the information in this case was already in the frame the mother was using, the child is indicating that the mother's utterances are becoming interpretable by the child. This is further indicated in these data by the children beginning to label pictures with signs, and request signs for pictures, indicating that the deaf children had learned that pictures of objects and people have labels, and that these labels were able to be used for real life instances of those pictures. Thus, not only do these model conversational structure for the infant, they provide an opportunity for the mother to expand a play session into a type of tutorial session (Gallaway & Woll 1994; Moerk 1985; Snow & Goldfield 1983).

Although the early participation in picture book reading by the deaf child in this instance may be limited, the recurrent interactive episodes appear to aid children's knowledge and understanding of the structure of exchange. Children, through participation in picture book contexts, learn: to attend simultaneously to non-linguistic and linguistic input, and differentiate between the two; share focal and visual attention; and, joint attention with another. Children's knowledge of contextual and sequential information is thus developed, as is their understanding of the system and conventions of signed turn-taking which recur throughout the context of picture book exchanges (Moerk 1985; Ninio & Bruner 1978; Snow & Goldfield 1983). With children's increased ability in language this knowledge provides important scaffolding, as they gradually become more active participants in taking their turn at talk in these signed exchanges.

7.3.3 Questions

One of the most widely cited characteristics of early mother-child interactions, the high percentage of questions, has been explained in terms of the mother's attempts to involve her child in interaction. Answering questions appears to be among the "first clearly discourse-bound obligations" (Ervin-Tripp & Miller 1977:14) to which a child is sensitive, and their responsiveness to them is so strong mothers will often frame questions "simply to occupy a turn or keep conversation going" (Ervin-Tripp & Miller 1977:14; also Blount 1977; Garvey 1984; McTear 1985).

Questions are utterances in discourse which set up expectations for a response, and, if a response is not forthcoming, the absence is noticeable (Keenan 1974). Questions are units which are made up minimally of two turns, by different speakers, that occur immediately together with no intervening talk. A type of paired utterance, termed 'adjacency pairs' by Schegloff & Sacks (1973), are questions that, by their nature, demand a reply from a specific person and, as such, are a device that ensures the turn at talk is passed to another (Schegloff & Sacks 1973; Sacks et al. 1974). Not only are questions designed as a means to initiate an obligatory next action, but their structure guides the formulation and content of the response. The first part in the pair, the question posed by one person, obligates the person addressed to provide the second part of the pair - a relevant answer (Garvey 1984; Sacks et al. 1974).

In early mother-infant interactions question forms are very simple and have little variation. Questions are used to focus the infant's attention to a specific object, person or action (e.g., bathing, eating), and almost always refer to here-and-now referents in everyday routines (e.g., bathing, eating). Consisting of simple formats, early questions appear to be little more than labelling routines.

(7.3.3.1)

infant	((looking at bag))
mother	point {onto bag} BAG WHAT point {inside bag} *It's a bag* *What's in here?*
	(tilts opening of bag toward infant))
infant	((looks in basket reaches hand toward objects))
mother	↓ ↓ ((reaches in basket, picks out baby's bottle and shows infant))
	point {onto bottle} WHAT BOTTLE
infant	(smiles) ((reaches toward bag))
mother	((puts bottle down)) WHERE DOLL point {inside bag} *Where's the doll?* *In here* ↓ ↓ ((reaches in bag, picks out doll)) point {onto doll} WHAT DOLL *What's this ?- the doll.*

(0;5) (10:2:105-110)

In example (7.3.3.1) the mother and infant are seated on the floor. The infant looks towards the nappy bag resting on the floor nearby, and the mother points onto the bag and signs BAG. The mother asks the infant what's in the bag and tilts the opening of the bag toward the infant so that the contents are visible. The infant reaches towards the objects in the bag. The mother picks out an empty baby's bottle, points to it and queries WHAT the object is, and then labels the object BOTTLE. The infant smiles and reaches toward the bag again, the mother asks the child WHERE is the DOLL - which is visible in the opening of the bag, pointing toward the bag, stating it's there. She then reaches into the bag, picks up the doll, points onto the referent, and labels the DOLL. The mother and infant continue exploring the contents of the bag.

As found in picture book exchanges (see sub-section 7.3.2 above), early question routines can be seen, in terms of Ninio and Bruner's (1978) labelling routine, as consisting of: an attention device (showing the bottle), the query (point + WHAT) and the label (BOTTLE) (Ninio & Bruner 1978). Labelling routines, viewed as a precursor of the question format introduce adjacency pairs, with the first part of the pair being formed by the query, and the second part of the pair by the label

(Schegloff & Sacks 1973). The following, using the mother's utterances in the facing example (7.3.3.1), illustrates the paired nature of early labelling routines:

Question	WHAT + point	*What's this?*
Answer	BOTTLE	*It's a bottle*
Question	WHERE DOLL	*Where's the doll?*
Answer	+ point	*Here's the doll*
Question	point + WHAT	*What's this?*
Answer	DOLL	*It's the doll*

Granted, it is the mother, in these early paired utterances, who does all the overt linguistic work; however, as seen in example (7.3.3.1), the deaf infants in these data are not inactive in this process. The mother imputes intention to infant behaviours (e.g., looking, smiling or reaching), and defines these contributions as a first part or question (e.g., look toward bag) and then responds accordingly with the obligatory second part or answer (e.g., BAG). Snow (1976) refers to this process as joint text construction, whereby the mother construes the infant's behaviour as a relevant turn by providing an appropriate response. In an adult exchange model questions require an appropriate response. The mother, operating within this model, treats certain behaviours by her infant as questions, and, thus obligated, provides a response. Questions are a means for passing the turn to another, which is what the mother is ultimately trying to achieve; and, as shown by previous research (e.g., Moerk 1985; Snow 1976), mothers will accept any reasonable attempt at an utterance as a first pair part.

In the following example, (7.3.3.2), the mother interprets the child's behaviours of showing an object and eye gaze direction in one instance, and pointing to the object and eye gaze direction in another, as a form of question; a request for a label. Indeed, the mother immediately offers the child an answer by providing the sign for the referents indicated (i.e., RABBIT, TEDDY BEAR). Later, in similar situations,

the roles are reversed: the mother points to something, and the child produces the sign for the referent (e.g., 7.3.3.3).

(7.3.3.2)

child	((picks up stuffed rabbit by ear, holds it, looks toward mother))
mother	RABBIT
child	point {to stuffed bear}
mother	TEDDY BEAR

(1;4) (5:2:30-33)

In example (7.3.3.2) mother and child are seated on the child's bed, facing one another. The child picks up a stuffed rabbit and shows it to the mother in order to gain her attention. The mother names the stuffed toy for the child as RABBIT. The child then points to a stuffed bear, again the mother names it. The naming game continues.

As far as denoting referents, the easiest and most frequently used devices by young deaf children in these data were non-verbal: pointing, showing and eye gaze. Analogous to these findings, hearing mothers supply responses to their children's early pointing, showing and eye gaze behaviours (e.g., Harris et al. 1983; Masur 1982). As with adult interaction, however, the "presumption that any voluntary behaviour is produced intentionally" is not uncommon (Snow 1976:14).

The above example, (7.3.3.2), suggests that the adjacency-pair nature of the exchange sequence is becoming more apparent to the child. The deaf child, in taking over the initiation of more adjacency-pairs with their own behaviours and responding more reliably to maternal utterances, demonstrates correct identification of situations. The child, by identifying recurrences of the situation, shows that they have begun to establish memories of the situation and the type of utterances produced during them (Snow & Goldfield 1983). However, the child's establishment of the exchange format is dependent upon the mother producing predictable utterances, at predictable points, within a specific routine.

Generally, simple labelling routines are performed mainly with infants; the mother provides the label, whether she, or the infant's behaviour draw attention to an object. From when the infant is aged between 1;0 to 1;6 these simple routines have been found to increasingly take the form of tutorial questions (Snow 1978; Wheeler 1983; Moerk 1985). At around 1;2 to 1;6 months children have been found quite capable of answering maternal questions as to the labels of objects indicated (Ninio & Bruner 1978; Snow & Goldfield 1983). The decline in simple labelling is indicated by a shift from the purpose of provision and rehearsal sustained by the parent, to the more complex testing and feedback purposes illustrated by example (7.3.3.3) below.

(7.3.3.3)

father	← ← ← _____ _ _ _ _ _ _____ ((picks up drawing and shows to child)) point {to picture} WHAT *What's this?*
child	CAT$_+$
father	↓ ↓ (nods) CAT$_+$ WHAT point$_+$ {on drawing of cat to each ear} *Yes, it's a cat A cat What are these?*
child	EAR
father	↓ ↓ (nods) EAR$_+$ SAME DOG EAR$_+$ point {to dog} *Yes, ears, the same as the dog's ears*

(1;7) (1:2:78-82)

In example (7.3.3.3) the father is lying on the floor facing his child, who is seated facing him. The father having just drawn a picture, picks it up from the floor to show his child and re-direct her attention from where she is looking to the picture. The father then points to the picture, and the child follows the direction of his point, then looks to her father's face as he asks what it is he has drawn. The child replies it is a CAT. The father nods and signs CAT confirming her response. The father continues by pointing to the pictured cat - specifying the cat's ears and asking what they are ? The child replies EAR, the father confirms that the response is right, but he signs ear twice (i.e., EAR$_+$) to mark plurality. The father then extends the context of ears by pointing to the family dog saying that the drawn cat's ears are similar to those of the dog. Father and daughter continue the exchange about the drawing.

As illustrated by the previous examples, (7.3.3.2) and (7.3.3.3), the child is learning to switch between the roles of speaker and addressee. Parent and child begin to take alternate turns in questioning and answering, learned through the routines of structured interaction. Prior to the age of 2;0, deaf children are socialised into the question-answer sequences, and by this age, have begun to take their turn quite often and a greater number of their utterances consist of signed answers rather than simply non-verbal behaviours. Parents' expectations are not only that the child will take their turn, but that the child will provide an appropriate response. Instead of accepting any behaviour (e.g., smiles, looks) as a response, the father in this example (7.3.3.2) insists by means of *what's this?* question upon a response from the child for the name of the referent. The questions are framed to obligate the child to respond with the signed answer (i.e., CAT; EAR). The insistence on a correct response from the child is a means of the parent testing the child's recognition and recall of specific items (Moerk 1985). The father then reinforces the child's signed answer by providing positive feedback that the child is correct (i.e., (nod) CAT_{+}, *Yes, it's a cat. A cat.*). Even in the case where the child provided the singular instead of the plural for her answer, the father provides positive feedback and repeats the answer with the correct number (EAR_{+}, *ears*). It appeared that when parents in these data provided the first pair part of the question-answer sequence, with utterances such as *What's that/this/these?*, the child was likely to respond with the second pair part, the answer. Appropriate questions and answers (responding), on the part of the child, lead the parent to believe that the child understands what is being said (Heath 1986).

Adults often match their utterances to what the child has just said, in order to establish a common reference situation providing the child with an opportunity for further response. For example, in (7.3.3.3), the child answers the father's question of a point + WHAT (*What's this?*) with CAT, the father confirms the answer as correct,

and then asks the child a further question about a specific attribute of the picture of the cat (i.e., WHAT + point$_+$, *What are these?*). When the child responds with the answer of EAR the father confirms the response with the correct response EAR$_+$ and draws the child's attention to the similarity between the drawn cat's ear to the ears of the family dog. This illustrates that parents extend their questions from simple queries about referent labels to questions which require more specific feedback, such as the attributes of a referent. The father's questions, by building on the child's preceding answer, not only construct a common reference, but provide opportunities for the child to relate language to readily interpretable and familiar situations (Harris et al. 1983). Deaf parents in these data appeared to structure their tutoring at a level which allowed great flexibility for initiative-taking and input by the child. Additionally, such interactions provided age-appropriate models of sign in the particular context of question formats, providing opportunities for children to acquire lexicon. Such strategies are conducive to enhanced child learning, as it has been found that children who are allowed to take initiative usually have a greater opportunity to acquire linguistic skills than those who are not (Jamieson 1994).

Not only does simple labelling introduce the unit-type of questions, it models the requirements of such turns in a signed exchange: continuity of eye gaze between participants; head tilts and body leans; facial expression[2]; and appropriate hand signals (i.e., signs for Wh-questions, e.g., WHAT; WHERE) (Caselli 1983; Johnston 1989a; Reilly & Bellugi 1996). As previously noted, early exchanges also provide mother-infant dyads further opportunities for: the establishment of mutual focus and joint and co-ordinated attention; shared social activity; role switching; and, sequences of initiation, response, and feedback (Budwig et al. 1986; Moerk 1985). For deaf children these interactions further provide an understanding of the

2 As noted previously, in Chapter 5: Motherese, Section 5.4, deaf parents use affective facial expression in lieu of grammatical facial marking when addressing young children up to approximately 3;0, after this deaf parents will shift toward using the appropriate facial grammar.

necessity of simultaneous visual attention to objects and events, and the establishment and maintenance of mutual visual attention between deaf participants for signed exchange (Harris 2000; Harris & Mohay 1997).

Labelling appears antecedent to questions; a simple format of initiation-response that evolves later into the question-answer format. Questions not only function as means to elicit labels, provide feedback, and assess the relationships in the child's everyday world, but also function as a means to introduce structures of exchange (Liddicoat 1991; Moerk 1985). Questions also model turn-taking within adjacency pairs, which, in turn, provide the basis for sequential and structural organisation in conversational exchange (Schegloff & Sacks 1973).

7.3.4 Eye Gaze

Eye gaze not only indicates that a speaker's utterance is being addressed to a particular party, but functions to provide organisation and meaningfulness within a turn at talk (Goodwin 1981). In sign language "(t)he single most important regulator in conversation is eye gaze, because it determines the boundaries of when one can 'speak' and be 'heard'" (McKee, Johnson & Marbury 1991:243). A signer cannot, in fact, initiate an exchange until the desired potential addressee looks at the potential signer. That is, something cannot be 'signed' and 'seen' if another is not first looking (Mather 1987; Baker 1977).

It has been found that eye gaze is learnt from an early age, in the first months of interaction between infants and parents (see previous Chapters 4, 5 and 6). The visual system can, at this stage, perform subtle, instant-by-instant regulation of social contact, giving the infant control over the amount of visual contact made (Stern 1974;1977). Initially, eye contact for the infant tends to be face-to-face, with

mother-infant dyads engaged in sustained periods of mutual eye gaze. For the infant, eye contact is a response to interactive exchanges initiated and solicited by parents (D'Odorico & Levorato, 1990; Waxman & Spencer 1997). For all infants the "linguistic environment is inextricably interwoven with facial expression and eye contact" (Jaffe, Stern & Peery 1973:322); more so for the deaf infant, as eye gaze not only functions as a channel for receiving linguistic and environmental information, but is part of the structural system of exchange (Swisher, 1991).

(7.3.4.1)[3]

mother ↑ ↑ ↑ ↑ ↑ ↑ _____ - - - - - - - - - - - - - -
[_____]
((shows infant plastic duck, draws duck downward towards
- - - - - - - - - - _____
[_____]
mother-infant face-to-face position)) DUCK+

infant _____
[_____]
((reaches out and grasps duck))

mother _____
[_____]
(nods) HOLD DUCK
Yes, you hold the duck.

(0;5) (10:2:91-93)

In example (7.3.4.1) the infant is lying in a bouncinette, positioned to face toward her mother who is seated in an armchair opposite the bouncinette. The infant is looking towards the ceiling, and her mother holds up a plastic duck and shows it to the infant by moving it into her eye gaze line, and slowly moving it downward so that it is positioned between them, face-to-face. As the infant focuses her visual attention where directed, her mother labels the object DUCK. The infant reaches out and grasps the duck, her mother then signs to her that, yes, she can hold the duck. The infant chews on the duck as her mother gets another object to show to her.

3 In order to facilitate discussion on gaze behaviours in signed turned taking, all examples in sub-section 7.3.4 will denote both *addressee* eye gaze line and *signer* eye gaze line. *Signer* eye gaze line will be bracketed e.g., [____ ↓ ↓] immediately above signed utterance.

The infant in the previous example, (7.3.4.1), is prelinguistic, and has not as yet learned the language to be involved in the mechanisms of turn-taking; however, the mother uses a number of behaviours in order to ensure her infant's participation. The mother shows the infant a toy duck, picking it up and moving it into the infant's visual field. Using the toy duck, which has become the infant's object of interest, the mother draws the infant's eye gaze towards herself. Once she has established that the object and herself are both within the infant's visual focus she begins her turn at talk. The mother, holding the duck, provides the sign label, DUCK. The infant reaches out and grasps hold of the duck, from which the mother imputes the intent of a response turn. The mother then takes the next turn to provide positive feedback of *yes*, and the follow-up comment describing the infant's action; *you hold the duck.*

The mother's behaviour of placing both herself and the toy duck within the infant's visual field was a common strategy used by mothers in these data. Mothers appeared to ensure that such exchanges occurred within their infants' already existing visual focus, rather than attempting to alter their infants' focus prior to communication. This appeared to require far less breaking off and re-establishing of visual contact with the infant, reducing the necessity of the infant shifting visual attention in order to see both the object and the accompanying signed utterance (cf. Erting et al. 1990; Mohay 2000). The eye gaze line of the infant in example (7.3.4.1) illustrates the effectiveness of the mother's strategy. Initially, the infant is lying in a bouncinette looking upward: the mother moves the duck into the child's visual field, she shows/displays the duck, and then slowly moves the duck downward toward herself. The infant tracks the movement of the duck until her visual regard is established on both mother and object.

Clear shifting of visual attention by the infants in these data appeared, initially, to be mainly in response to either the mothers' moving an object, or to the mothers' own movement. Infants' spontaneous looking toward their mother at this age consisted primarily of brief glances, most often too brief for mothers to use as an opportunity to communicate. Mothers in these data therefore appeared to exploit their infants' ability to notice and track moving objects, to direct their infants' attention to, or near the mother's face in order to communicate. As noted by Swisher (2000), the purpose behind the deaf mothers' action seems both linguistic and interactive. A mother uses the opportunity of gaining the infant's visual attention to introduce language by commenting on objects or events to which the infant is visually attending (e.g., DUCK (7.3.4.1) above), "but it also seems as if one purpose of the interaction was for the child to learn the mechanics of interacting" (Swisher 2000:36).

The deaf infant learns to turn and look toward their mother, either in response to an elicitation by their mother, or spontaneously, and, further, the infant learns that they must continue to look until the mother's utterance is complete. Deaf mothers' attempts to maximise mutual visual regard with their deaf infants suggest that deaf mothers are attempting to teach their infant to attend visually. The repetition and constancy in the patterns of the occurrences of turns and responses aid the infants' understanding of the back and forth nature of turns, and the mechanisms required in visual exchange. As with spoken conversation, it is convention in signed turn-taking for the addressee to maintain eye contact with the signer (Baker 1977; Kendon 1976). Also, in both signed and spoken modalities, the speaker may give the floor to the listener by sustaining eye gaze with the addressee, just as the listener may request the floor by sustained eye gaze on the current speaker. Further, maintained eye gaze by the addressee on the current speaker is a back-channel signal, similar to head nodding and smiling, that indicates that the current speaker may continue (Baker 1977; Kendon 1967, 1976; Wilbur & Petitto

1983). Thus, the deaf child, in order to be able to participate in signed conversations of any length, must learn to sustain and maintain visual attention (Swisher 2000).

With age, the child shows an increased tendency to search for eye contact with a parent during attempts at interaction (D'Odorico & Levorato 1990). Spontaneous looking toward the mother increases, and the child will more often accompany glancing to mother with smiles or showing her objects of interest. Increased use of eye contact becomes a means for the child to intentionally communicate interest, and appears to be indicative of a more attentional conversational style and the child's developing communicative competence (Prinz & Prinz 1985; Schieffelin 1977).

(7.3.4.2)

child: _____ - - - _____ / [___ - - - _____] / point {to cups on table}

mother: _____ - - - _____ ↓ ↓ / [_____ ↓ ↓ _____] / HOT point {to cups} HOT TEA HOT+ ((mother drops hands to / *They're hot.* *It's hot tea - hot hot* / ↓ ↓ ↓ ↓ ↓ / [_____] / rest in her lap))

(1;1) (1:1-58-59)

In the above example, (7.3.4.2), the child looks to her mother, then directs her mother's attention to an object of interest by pointing to it, and turns to visually monitor her mother's face and subsequent response. The mother responds by visually tracking the gesture, and then establishes mutual eye gaze with her child in order to communicate information about the object indicated by the child. Once the mother finishes her utterance she drops her hands into resting position in her lap. The child, in response to the mother dropping her hands into a resting position, looks down and continues to play.

Deaf children in these data did not generally initiate a signed exchange without direct eye contact between the parent and themselves. The child's eye gaze line, (7.3.4.2) above, demonstrates the child's understanding that mutual eye gaze must be established in order to participate in a signed exchange. The child's eye gaze is

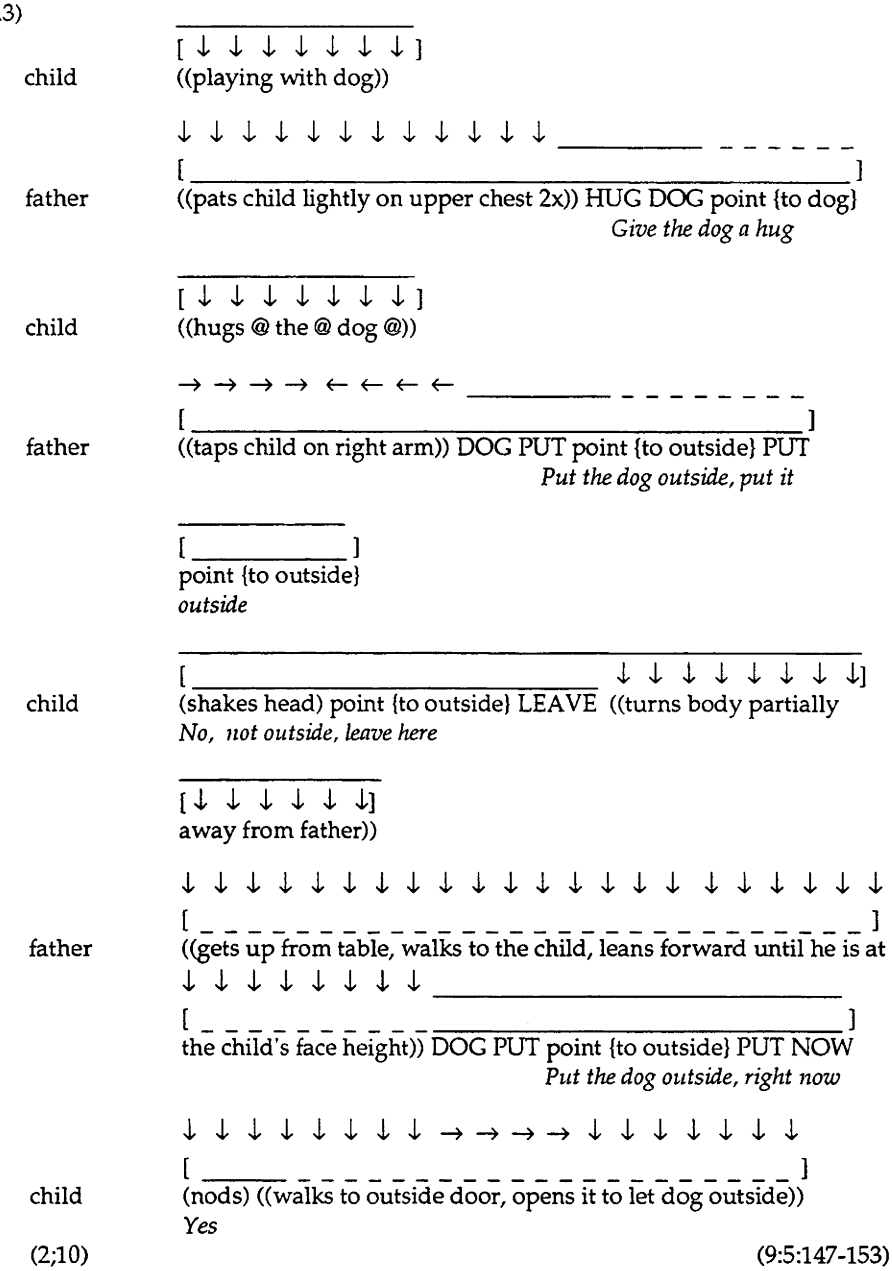
oriented toward her mother, and, on establishing mutual eye gaze with her mother she raises her hand into the signing space to begin her utterance. Further indication of the understanding of the need for mutual and sustained eye gaze is shown by the child when she directs her eye gaze with her point tracking it to the object, and then re-establishes her eye gaze on her mother's face. The child cross-checks that her mother has tracked her point by looking back to her mother's face, and then waits for her mother to re-direct her eye gaze back to her, establishing mutual eye gaze. The child, as speaker, finishes her turn and maintains mutual eye gaze with her mother (the addressee) without further utterance. The child's behaviours reflect a number of visual turn-taking conventions. In initiating her turn the child established mutual eye gaze with the addressee, raised her hand into the signing space (i.e., formed her point) prior to her utterance, and broke eye gaze momentarily to direct the addressee's attention, and then re-established mutual eye gaze. In order to signal her completion, and cede the turn-at-talk, the child established mutual eye gaze with her mother and ceased any signed activity, indicating possible turn completion and selection of the next speaker.

The child in the above example, (7.3.4.2), further demonstrates her understanding of the visual mechanisms of turn-taking in her behaviour as an addressee. During her mother's (i.e., the speaker's) turn at talk the child maintains eye contact with her mother (the speaker) throughout the mother's utterance. As the mother drops her eye gaze downward momentarily at the end of her utterance, and then moves her hands into a resting position in her lap, the child maintains eye gaze on her mother until turn completion occurs. The child understands, from the visual cues the mother provides (i.e., break of eye gaze, hands at rest), that the mother has finished her utterance, and also that, in re-establishing eye gaze, is proffering her child a potential turn at talk. The child chooses not to take up the turn, instantly dropping her eye gaze, and returns to what she was playing with prior to her exchange with her mother.

Previous research has shown an increase in deaf children's abilities, between the ages of 1;0 to 1;6, to switch visual attention between object and social partners (e.g., Harris et al. 1989; Waxman & Spencer 1997), and co-ordinate visual attention between animate and inanimate aspects of the surrounding environment (Bakeman & Adamson 1984). Further, as illustrated by the previous example, (7.3.4.2), it appears that, during this same period, increases occurred in the deaf childrens' use of sustained eye contact, reciprocal eye gaze, and spontaneous looking, resulting in smoother, more rapid turn-taking behaviours. By the age of 1;6 the deaf children in these data had already developed competence in looking spontaneously and frequently to their parents for language (cf. Mohay et al. 1996).

Between 2;0 to 3;0 years of age, rudimentary forms of visual turn-taking appear well established by deaf children in these data. As illustrated in the facing example, (7.3.4.3), initiating strategies (e.g., tapping, waving, showing) become effective means for parents to attract the child's visual attention toward themselves (see Chapter 6: Initiation). The child's eye gaze line in this example shows an immediate visual response to her father tapping her on the arm, promptly turning her eye gaze from the dog toward her father. Eliciting switches of visual attention is an essential means for the deaf parent to focus their child's eye gaze toward a potential signed utterance. Initially, as discussed above, this is achieved by the parents' moving themselves or an object into the child's existing visual focus. Over time, using initiating strategies (e.g., tapping, showing), and the predisposition of the child to track moving objects and seek eye contact, the parents encourage the child to shift visual attention by moving the focus of communication. As Harris et al. (1989) note, deaf parents decrease their use of visual attention accommodations as the child acquires more advanced attention skills. Instead of accommodating communication within the child's existing visual attention parents focus the child's visual attention toward the communication.

(7.3.4.3)



(2;10) (9:5:147-153)

In the above example, (7.3.4.3), the child has left the breakfast table to play with the dog. The child is near to her father, still seated at the table. The child's attention is focussed on the dog, her body at a right angle to her father. The father reaches forward and pats the child twice on her upper body, the right hand quadrant of her chest, to gain her attention. The child re-orients her body to face her father. He tells her to give the dog a hug, which she promptly turns and does, laughing. She then stands face-on to her father, swinging her head and upper body from right to left repeatedly, whilst laughing. The father reaches forward and taps the child on the arm to gain her attention. Ceasing her activity immediately she looks to him, to be told that the dog is to be put outside. She disagrees, wanting the dog to stay inside, turning her body away

> from her father and dropping her head forward toward her chest, lowering her eyes. Her father walks over, bends down to the child's face level to ensure eye contact and repeats his request that she put the dog outside. The child nods and walks sombrely with head down to the back door, opens it and puts the dog outside.

The development of attention skills coincides with that of children acquiring the ability to both produce and perceive utterances which involve co-ordinating dual-directional linguistic and non-linguistic information (Masur 1983). This is demonstrated in the above example (7.3.4.3) when the child, after visually tracking her father's initial point toward the outside door, maintains mutual eye gaze with her father when he next references the same location. The child demonstrates her own productive abilities when she points to the outside location later in the exchange, and, rather than visually following the direction of her point, maintains mutual eye gaze with her father.

What is of particular interest from a developmental perspective, in example (7.3.4.3), is when the child appears deliberately to withhold her visual attention. The child appears not to want to continue the conversation with her father, and averts her eye gaze after negation of her father's instruction to put the dog outside. The child's response of *No, not outside, leave* (i.e., (shakes head) point {to outside} LEAVE) is followed by her dropping her eyes downward and turning slightly away from her father. The father, waiting to re-gain his child's visual attention, sees her actions and moves himself into the child's eye gaze area to attain mutual eye gaze with her in order to repeat his instruction. When a deaf child turns away from a social partner it is done at the risk of cutting eye contact, which in signed exchange is essential to receive information and to show attention. The child, by her behaviour, contravenes the appropriate convention that mutual eye gaze between the speaker and the addressee must be held until the speaker finishes, or until the addressee replies. Although minimal looking away, such as a glance away before responding, for processing and encoding is normal behaviour in both deaf and

hearing conversation, total withdrawal of eye gaze is not (Baker 1977; McKee et al. 1991). The etiquette of turning around or averting eye gaze is rarely violated in signed discourse, as such behaviour is interpreted as rude or insulting (cf. Hall 1983). In this case the child understands that her father can only become a speaker if eye gaze is granted by the current speaker, and her actions appear to be a refusal to continue. What makes the child's actions appear deliberate, when considered in light of her previously discussed visual turn-taking skills, is that she anticipated that her father's next turn would involve a repetition of something she did not want to 'see'. By refusing to participate in the conventional turn behaviours she pre-empts this from occurring. The withdrawal of eye gaze by the child in this instance appears deliberate, not as a result of her lack of knowledge of the eye gaze conventions involved. Rather than being rude, the child's behaviour can be viewed more positively as evidence of her having learned the system of visual exchange so well that she is able to adaptively use components to participate as she wills; which is both strategic and resourceful.

For the deaf child the use of eye gaze evolves into conversational behaviours which have specific significance for participating in signed exchange. In conjunction with developmental maturation of cognitive and visual abilities deaf children must learn certain visual skills required for participation in visual conversation. Development of visual skills for such exchanges involves the ability to gain and direct another's visual attention, sustain mutual eye gaze with another, and co-ordinate visual attention with another. Further, deaf children must learn the use of specific visual behaviours that signal the initiation, continuation, and completion of a turn, and those visual behaviours required by the roles of speaker and addressee. Deaf parents in these data, in supporting the child's development, appear to adjust their behaviours to provide appropriate, comprehensive and motivating input for their deaf child, in order to encourage the development of eye gaze behaviours and facilitate their children's induction of the rules of visual conversational exchange.

7.4 Discussion

Mothers and infants in this data have been observed from the beginning of interaction to take turns; that is, while one is active the other is responsive. It appears that as soon as the infant's eyes are open deaf mothers engage with their infants in social and ritualised exchanges which have about them a contingent pattern. These early exchanges appear to have structured interactional sequences similar to those found in adult conversational exchange.

Episodes of early exchange such as those found in games, rhymes and picture book reading in this data, are inflexible, highly repetitive, and consist predominantly of instances where the mother repeatedly solicits the attentive participation of her infant. Like conversational exchange, early interactions in this data are made up of alternating turns; however, the content, duration, and pattern of the turns appear relatively invariant within the exchange. In adult conversational exchange the content is not predetermined, and so the duration and pattern of turns varies. In contrast early exchanges, in this data, are a rhythmic form of interaction, and each such event appears to have its own content pattern engendering set turns which are more or less determined from the onset of the exchange. The participants do not participate in the interaction with identical roles, but with complementary ones, and similar to the basis on which conversational organisation is structured, each turn is contingent on the preceding turn, which in turn conditions the successive turn.

As exemplified in (7.4.1), below, the deaf mothers in this data initially play a major role in providing the structure for early exchanges. Deaf mothers are found to attend to their infant's focus most of the time; modify sign placement to ensure signing occurs within their infants' pre-existing visual focus; to use physical contact (e.g., tapping, touching, tickling) and objects (e.g., tapping toy bird to child's nose)

to ensure tactile as well as visual input; and ensure by placement of themselves and objects, that both sign and context are able to be observed by their infants simultaneously, as shown in example (7.4.1), below.

(7.4.1)

infant	((sitting on floor staring down at yellow bird toy))
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
mother	((taps infant's arm 3x; taps infant's leg 4x; taps infant's
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
	shoulder 7x takes hold infant's face between flat hands
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
	and tries to gently turn his face toward her own))
infant	((resists mother's movement of head, reaches toward her
	mother's hand to get her to move it, continues to look at
	toy bird; reaches for toy bird))
mother	((picks up toy bird; moves it slowly upward to just below
	her face; displays bird just below her face in L/H))
	BIG BIRD + + ((moves bird toward infant's face taps
	It's big bird, Bird. Bird.
	(pecks) infant on nose with bird 2x; withdraws bird))
infant	((reaches toward bird))
mother	((moves bird toward infant's face and again taps (pecks)
	infant on nose 3x and draws the toy away))
infant	((reaches for bird)) @ @ @
	↓ ↓ ↓ ↓
mother	LAUGH ((taps infant on the nose with toy bird; allows
	You're laughing
	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
	infant to grasp toy bird)) (smiles) GOOD PLAY
	Yes, it's a good game
infant	(smiles)
(0;6)	(7:3:1-9)

Further, deaf mothers appear to adjust their behaviour to accommodate to that of their infants as illustrated above, (7.4.1), by: timing their contributions to fill in pauses between infant responses; providing for their infant's contribution by

imputing meaning from certain of their infant's behaviours (e.g., smiles, gurgles, laughter); gaining and directing their infant's focus of attention by orienting themselves to their infant's existing focus; and, tapping/patting their infant and showing objects, and/or using objects to interact with their infant. Deaf mothers' accommodations appear to provide a 'scaffold' for their infants (cf. Bruner 1983). They provide opportunities for their infant to repeatedly observe the fundamental pattern of an exchange, by modelling the ways to initiate, sustain and terminate conversation through supplying simple, redundant models, asking questions, providing relevant comments, and talking about the here-and-now pertaining to the infant's focus of attention. Not only have these types of behaviours on the mothers' part been found to have the effect of drawing their infant's attention to language, but also to "the structure of the acts in which communication is taking place." (Bruner 1977:10). Additionally, deaf mothers were found to use early exchanges as a means of training their infants' eye gaze behaviours for visual attention (cf. also Woll & Kyle 1989). As example (7.4.1) shows, the deaf mothers in this data, through tactile (e.g., tapping, patting) and visual (e.g., showing, moving objects within the existing visual focus) strategies, attempt to maximise their infants' visual attention toward themselves. The game for the mothers "seems to become 'how to get the child to look at me' rather than how to get the child engaged in a long interaction" (Kyle & Ackerman 1990:209).

Conventionalised exchanges such as those found in games, rhymes and picture-book reading do not 'disappear' as the child develops, but progressively become more actively controlled (Foster 1982). The fact that conventionalised exchanges contain predictable patterns with highly routinised roles enables the infant to recognise these reciprocal roles and underlying contingencies. Consequently, with age the child is able actively to assume their part, and relate meaning to the

language produced by their mother when interacting in these exchanges (Camaioni 1986). The deaf infants in this data contribute a variety of behaviours, such as those of smiling, laughing, and reaching (e.g., 7.4.1) in alternation with their mothers' behaviours within early exchanges. Between the ages of 1;0 to 1;6 the deaf children in this data become more active in their participation. As illustrated by examples (7.4.2) and (7.4.3) below, deaf children show a marked increase in their abilities to: adopt reciprocal roles (i.e., speaker and/or addressee); take their turn and respond appropriately to another's turn at talk; initiate and terminate an exchange; and, to determine the nature and content of exchanges. Further, the deaf children show a marked increase in competence in eye gaze behaviours. As examples (7.4.2) and (7.4.3) show, deaf children do not initiate an exchange or provide a response to another's initiation until they establish mutual visual attention with their parent. Increases in spontaneous, sustained and co-operative looking behaviours by the deaf children, at this age, appear to reduce the necessity for parents to actively gain, direct and sustain their children's visual attention to the communication.

(7.4.2)

child — point {to cups on table}

mother — HOT point {to cups} HOT TEA HOT$_+$ ((mother drops hands to rest in her lap))

They're hot *It's hot tea - hot hot*

(1;1) (1:1-58-59)

(7.4.3)

father — ((picks up drawing and shows to child)) point {to picture} WHAT

What's this?

child — CAT$_+$

father — (nods) CAT$_+$ WHAT point$_+$ {on drawing of cat to each ear}

Yes, it's a cat *A cat* *What are these?*

child — EAR

father — (nods) EAR$_+$ SAME DOG EAR$_+$ point {to dog}

Yes, ears, the same as the dog's ears

(1;7) (1:2:78-82)

Viewed as a precursor to later exchanges, early naming, labelling and picture book reading routines appear in this data to introduce to the deaf child the sequential and contingent nature of utterances in an exchange. Initially, as in the previous example (7.4.3), these routines can be seen to contain an attention device (e.g., showing the picture to the child), a query (e.g, point + WHAT), and a label/name (e.g., CAT). These routines exemplify the conventions basic to exchange structures, modelling: the reciprocal roles of speaker and addressee; the requirement of an appropriate response to another (i.e, contingent response); the principle of each speaker having a turn at talk; and, the sequential nature of the talk. These early structures also appear to introduce the paired nature of certain utterances, such as those found in the adjacency pairs of question-answer sequences. Again, using the previous example, (7.4.3), the query or question (e.g., point + WHAT) introduces the first part of the pair, with the feedback or response or answer (e.g., CAT) providing the obligatory second part of the pair. Adjacency pairs, as minimal units of exchange, similarly model for the child speaker and addressee roles, turn-taking, contingency of response, and sequencing of talk. Additionally, question-answer pairs provide structures which model that some types of talk by design initiate next actions, dictate speaker change, require a response to be complete, and guide the content of that response (Sacks et al. 1974).

Early exchange structures in naming/labelling, picture book reading and questions also provide a style of interaction which lends itself in these data to establishment of mutual attention, co-ordinated and joint attention, and shared social activity. All of these have previously been found necessary for acquiring the linguistic means for coherent, co-operative and successful communication (cf. Bruner 1983; Garvey 1984; Keenan 1974). Additionally, for the deaf child such contexts appear to provide opportunities to develop abilities in: sustaining and maintaining visual

attention; switching visual attention between context and another person; gaining, directing, and cross-checking another's visual attention; and, co-ordinating dual-directional linguistic and non-linguistic information. For the deaf child to acquire a visual language, both the signed language and the social context for that language must be available for the development of the ability to exchange conversation with another (Gallaway & Woll 1994). Essentially, exchanges appear to provide a framework for the deaf child in which to develop understanding of the mode of reception and production of Auslan, and toward developing the abilities to function visually within a signed conversational exchange.

Seen solely in terms of units, mother-child interactions in this data further provide a means of examining signed discourse which can be characterised in structural terms. Viewed within Sinclair and Coulthard's (1975) and Stubbs' (1983) models of conversational exchange, the structure of deaf mother-infant interactions can be seen to have an exchange structure comparable to that of adult spoken exchanges. For example using the interactions in (7.4.1), (7.4.2) and (7.4.3) respectively, to illustrate:

initiation	(taps toy bird to infant's nose 3x, draws toy away))	(mother)
response	((reaches toward bird)) @ @ @	(infant)
(feedback)	LAUGH ((gives infant toy)) (smiles) GOOD PLAY	(mother)
initiation	point {to cups on table}	(child)
response	HOT point {to cups} HOT TEA HOT_{+}	(mother)
initiation	point {to picture} WHAT	(father)
response	CAT_{+}	(child)
(feedback)	(nods) CAT_{+}	(father)

Within each exchange structure illustrated above there are the distinct moves of: an initiation, which prompts another to participate in the exchange; a response, which is a supporting move which conforms to the constraints and predictions of the preceding move; and the feedback, which may or may not occur to evaluate the response. The initiation predicts the following response and the response occurs relative to the preceding initiation (i.e., they are symmetrically related), with the feedback, optionally, to sum up or close the sequence. An exchange, as noted by Stubbs (1983), appears in its simplest structure therefore to be an initiation from one speaker and a response from another. Most obvious of these simple structures in these data are question-answer pairs. Seen in terms of Schegloff & Sacks' (1973) adjacency pairs, question-answer pairs in these data reflect further comparable evidence of minimal units of organisation in signed conversation, as in examples (7.4.2) and (7.4.3) respectively:

question	point {to cups on table}	(child)
answer	HOT point {to cups} HOT TEA HOT_{+}	(mother)
question	point {to picture} WHAT	(father)
answer	CAT_{+}	(child)

The question-answer pairs illustrated similarly reflect the spoken model of adjacency pairs, in that they are comprised of paired utterances which are organised so that the first part of the pair of utterance (i.e., the question) provides specifically for what occurs in the second (i.e., the answer). The second part of the pair is related to the first part of the pair, such that if the obligated second part of the pair does not occur the absence is noticeable. The relationship between the first and second pair part is one of conditional relevance; that is, the first part of the pair

imposes conditions upon what is the relevant response in the second part of the pair (cf. Schegloff & Sacks 1973).

In accordance with both the concept of exchange, and that of adjacency pairs, conversational exchange in Auslan can be seen to be made up of units of structure. The basic minimal form of these units appears to comprise: at least two utterances in length; utterances produced successively by different participants (i.e., there are the reciprocal roles of speaker and addressee); ordered utterances (e.g., initiation-response-(feedback) or question-answer); and related utterances (i.e., conditioned relevance or contingency of response) (cf. Schegloff & Sacks 1973; Schegloff 1996; Stubbs 1983). These elementary units can then be shown to be combined in various sequential ways by participants, in order to co-construct organised stretches of talk or signed conversations.

The rules for structured conversational exchange in sign language are by no means well-documented. However, the general exchange structures found in the deaf mother-child interactions in Auslan conversation do appear to reflect the exchange structures proposed by Schegloff and Sacks (1973), Coulthard and Sinclair (1975) and Stubbs (1983) in explanation of the systematicity of adult spoken language conversational exchange. While these models of exchange are designed to account for the structure in adult spoken conversation, they do allow specification of the early deaf mother-child interactions in these data as systems of exchange in their own terms, and, at the same time, allow for these exchanges to relate to, and be seen reflected in, adult models of exchange.

The use of conventionalised models of exchange may additionally facilitate future comparison of spoken and signed conversation, allowing a structural framework in

which similarities and differences in the forms of language systems become evident. For example, although signed language can be seen to display a heightened and distinctive use of the visual and physical in the accomplishment of conversational exchange, spoken language is not totally devoid of such features (cf. McIlvenny 1995). Visual behaviours in spoken conversational exchange have been well examined, and found to be important to the structure of discourse (cf. Ekman & Friesen 1969; Goodwin 1979; 1981; Kendon 1990). More recently, examination of the use of the body in spoken discourse has found that "body torque", or "postural configuration", is not only affected by, but can itself affect the course of interaction (Schegloff 1998:536). Body torque refers to different orientations of the body segments above and below the waist, and the neck (e.g., upper body lean and head tilting, respectively). Within spoken language body torque has been found to function as an orderly component of the organisation of structure, which can be viewed as actively influencing the talk that co-occurs with it, or as adaptive to that talk; or, more simply, to mirror the structure of that talk (Kendon 1990; Schegloff 1998).

Comparatively, the body, in signed languages, can be seen to function similarly to the findings on body torque in spoken languages. The body, in signed language, however, plays a far more fundamental role in the linguistic system. In signed languages the head, hands and body provide articulatory components which combine to form the manual and non-manual elements required to produce the linguistic form. It is the body itself that provides the means for the formation of sublexical structures of linguistic production. Further, these articulatory components also provide the means for both linguistic and non-linguistic realisation of certain grammatical structures of signed language (see Chapter 2, Section 2.2 Auslan as a Linguistic System). Additionally, the body functions to

provide components of structure (e.g., turn-taking, sequencing) in the organisation of signed discourse.

Even this brief comparison reveals that, in spoken or signed language, both visual and bodily resources play a part in accomplishing the coherence and sequence of structure in conversational exchange. It appears that, although the structure of signed conversational exchange may be "managed using the same resources...as those found in spoken languages" (McIlvenny 1995:132), the difference lies in the degree of constraint and reliance placed upon such resources. What is essentially different is that the modality of signed language perception and production constrains the resources of the eyes and body to structure the organisation of discourse exchange. In signed language discourse exchange *is* only possible when participants are able to see one another's linguistic and non-linguistic use of eyes and body. The modalities of spoken language perception and production do not embody such constraints; that is, spoken language uses the same resources, but the degree of reliance placed on the resources is not as essential in the structuring of discourse exchange.

It appears, however, regardless of the modality of language, early discourse exchanges provide for the child a means of interacting with others in routine and patterned ways. These early interactions regularly engage the child in a set of organised practices which facilitate the child's perception, analysis and practice of language within conventional structures. It is the recurrent and predictable patterns of these exchanges that provide a format in which the child can learn to reproduce conventional, simple systematic routines and conventionalised behaviours, and, over time, use this established learning to become a more active participant in conversational exchange. Additionally, for the deaf children in this

study, these exchanges provide opportunities for learning about the behavioural constraints and resources necessary for communication in a signed language, specifically that the language they produce, and the context for that language, must be visually accessible in order to exchange conversation with another.

Obviously, there are limits to any child's range of behaviours. However, what behaviours the deaf children in these data are able to achieve in Auslan conversational exchanges, within those limits, appear to be as orderly and systematic as those of adult speakers. As Bruner (1983:28) argues, although there may be "differences of opinion concerning the 'rules' that govern this orderly behaviour, ...there can be no quarrel about its systematicity".

8

Conclusion

> *Language is not what voices do - language is not what hands do (and language is not what linguists think it is) - language is what people associating with people do.*
>
> (Stokoe 1983)

Introduction

The rules governing social interaction vary from culture to culture and from language to language (Marschark et al. 1997). Sociocultural information is generally encoded in the organisation of conversational discourse, and the discourse with children has been shown to be no exception (Ochs 1986; Marschark et al. 1997). Discourse is structured by the conceptions of both speaker and addressee of the social activity taking place. For children, a critical area of social competence is the ability to understand what social activity is taking place, and to develop appropriate behaviours to participate in ways sensitive to the context of the activity (Ochs 1986; Schegloff 1989). In many cases, "language is not simply responsive to the social activity... it is the social activity" (Ochs 1986:3).

It has been proposed that children acquire tacit knowledge of these principles of social order and systems in their mother tongue, through exposure to, and participation in language-mediated interactions (cf. Ochs 1986). There is still little comprehensive research regarding the early development of deaf children who grow up in families with deaf parents. In this chapter some initial steps are taken to

rectify this situation by providing an overview of some of the more interesting observations of this study of deaf infants as they interact with their deaf mothers in Auslan.

This chapter reviews findings of this study pertinent to the developmental acquisition of discourse which deaf children go through when leaving prelinguistic discourse for the system of signed linguistic discourse. Tracing the acquisition of discourse competence from the early stages, this chapter initially reviews prelinguistic discourse, looking to the role that deaf mothers, deaf infants, and discourse itself play in providing intention to prelinguistic mother-infant interaction. Reviewing interaction from the perspective of continuity this chapter then looks to the extent of contribution in the fine-turning, convention and structure of language in interactive exchange toward the appropriation of means by deaf children for the realisation of later linguistic discourse. Following through to productive language, that is the deaf child's intentional use of language for discourse purposes, this chapter looks to the deaf child's productive competence in the convention, sequence, and structure of signed discourse exchange. Conclusions concerning the acquisition of discourse in Auslan complete this chapter.

8.1 Prelinguistic Discourse

The use of adult conversational models in child language acquisition research to examine early mother-infant interactions resulted in prelinguistic interactions being viewed as conversational in nature (cf. McTear 1985). These early interactions, or protoconversations, provide context for features of syntactic and semantic simplicity found in the speech adults address to young children (cf. Snow 1994). Early interactions also provide a situationally-bound context for the occurrence of certain infant behaviours. The nature of these early dyadic interactions is seen as conversational, due to the underlying motive of the reciprocal exchange of information.

8.1.1 The Discourse Pattern

Patterning of early deaf mother-infant interaction, considered in this study, is attributable to the mother creating a context in which the infant is exposed to conventional structures of social language. Deaf mothers in this study accommodate to the asymmetry of being a competent adult user of the language in interactions with their prelinguistic infant, by adjusting various features of their speech to maintain interactions.

In constructing the interactive pattern deaf mothers respond to certain infant behaviours, such as smiles, gurgles, and vocalisations, as utterances. The selection of particular behaviours shows that deaf mothers discriminate aspects of infant behaviour as either satisfying (e.g., smiling) or not satisfying (e.g., crying) the normal criterion for an utterance, that is, as intentional. Deaf mothers consistently and reliably provide a response to this type of infant utterance, and spend a great deal of time attempting to elicit such utterances from their infant. In cases where an infant does not produce a behaviour which is directly interpretable as intended to communicate something specific, the deaf mother provides an utterance on the infant's behalf. Where the infant does produce a behaviour which is directly interpretable as intended, the deaf mother provides a response to this behaviour.

This constructed interaction is seen as comparable to adult conversation, because, overall, the pattern is more or less alternating: each participant makes one contribution at a time, each takes a turn at contributing, and each participant attends to the other's contribution. The resultant pattern, similar to that found in adult conversational structure, involves a smooth exchange of utterances with few pauses or gaps. The interaction is conversation-like in nature (i.e., proto-conversational) because the infant sustains the interaction, not with speech, but with certain behaviours that are reliant upon the mother's interpretation to be

counted as intentional contributions. The deaf mothers' interpretations and language, by which they sustain and maintain the interaction with their infant, are inherently based on their knowledge of conversational exchange. Deaf mothers' knowledge, as adult-users of the language, is that of the structures governing adult discourse. The origin of the structure of protoconversations can therefore be seen reliant on adult models of conversation.

8.1.2 The Role of Mother

Investigation of maternal speech characteristics has previously found strong evidence of mothers modifying their input to their child's linguistic abilities at the discourse level. Most aspects of maternal speech are, in fact, found to be specifically adjusted to the receptive and communicative abilities of the child (cf. Johnson-Morris & Nienhuys 1980). In the patterning of prelinguistic interactions, particularly in the context of protoconversation, the role played by mother is integral to the discourse structure.

Deaf mothers' utterances in this study are all essentially related in content to their infant, their infant's focus of attention, or their infant's activities. The specific function of these utterances appears to be to elicit some type of response from their infant, and to maintain their infant's responsiveness.

As revealed in this study, deaf mothers attune their speech to their infant in ways which prove parallel to those found in spoken motherese. Language of the deaf mothers is produced at a relatively slower speed, is syntactically simplified, involves frequent repetition, and, overall, is of shorter utterance length than that produced in adult conversation. Further, deaf mothers position themselves to maximise attention from the child, intersperse linguistic and non-linguistic affective language, and use a high frequency of interrogatives in interactions with their deaf infants.

Also observable in this study are modality-driven adaptations specific to signed language. Constrained to linguistic input via the visual modality, deaf mothers commonly move themselves, or objects, within their infants' visual focus of attention, and resist using signed utterances until they establish mutual visual attention with their infant. Further, deaf mothers commonly provide multiple modal stimulus (e.g., visual, tactile and kinaesthetic) for their deaf infants in their use of infant-adapted sign formation (i.e., physically guiding the infant's hands in the formation of a sign), production of signs directly onto the infant's body, and while in bodily contact with the infant (e.g., while the infant is seated on their lap, or leaning against or beside them).

Of specific interest in this study is the response of deaf mothers to vocalisations by their deaf infants. Although deafness, by definition, excludes auditory reception it does not preclude visual or sonic (i.e., physical realisation of sound-waves) reception. Deaf mothers looking at their infant's face, or in contact with their infant's body, may see (e.g., mouth movement; facial expression) or feel (e.g., tensing, or contracting of face, neck or body) their infant's vocalisations. Deaf mothers, like hearing mothers, treat infant vocalisations as intentional contributions, and, accordingly, provide a response .

A further finding specific to this study is that deaf mothers show a type of patterning in production of some utterances that involves exaggerated and expanded articulation of a sign's formation and movement. This Production Pattern[1] involves three steps: (1) establishing the handshape very clearly and slowly; (2) expanding and slowing the movement of the sign; and, (3) pausing, to hold the sign in the place of articulation for an extended time (i.e., 1-2 seconds). Each of the specific features of the three steps in this pattern may, in a way, reflect

1 see Chapter 5 Motherese, page 81 for details of the Production Pattern.

the prosodic features found to be typical of spoken motherese. A constant feature of motherese is that production of a word is clear in its articulation, simple in its form, and slower than forms delivered to adult users of the language. Further, the prosodic features of spoken motherese involve auditory dimensions (e.g., tone, duration, pitch) which function to convey affect. It is proposed that the production pattern found in this study functions as a modality-specific translation of spoken prosodic contours into physical contours for communicative affect. In explanation of this, a recent finding of signed languages is that the rhythmic gestures, or beats, provide stress in certain elements of sign production for the purpose of emphasis or clarity, similar to that provided by prosodic features in spoken language (cf. Schembri 1996). Thus, when deaf mothers sign in contact with their deaf infants (i.e., on the infant's body, or with the infant on their lap) the rhythmic quality of their signing functions to provide prosodic features of signed language, akin to those found in spoken languages, that the infant is able to feel via this physical contact with the mother.

Overall, in conveying linguistic input deaf mothers' adjustments, signed motherese, appear to stimulate and sensitise infants to the visual and manual processes of signed language. The primary differences between Auslan motherese and spoken motherese, in general, appear driven by the constraints and opportunities afforded by a language which is produced manually and perceived visually. The finding of motherese in Auslan, supported by similar observations in other signed languages, (e.g., ASL, Spencer & Lederberg 1997; BSL, Gregory 1995; and JSL, Masataka 1992) provides strong evidence for the ubiquitous nature of motherese. Motherese, regardless of language modality, appears to be a universal phenomenon, used primarily for the purpose of communicating the necessary foundations for infants' acquisition of language (cf. Snow 1994).

8.1.3 The Role of the Infant

Mothers essentially create protoconversations through being adult users of the language, imposing structure on the interactions, imputing meaning to infant behaviours, and making provision for infant contributions. A central principle of social interaction is that an individual's behaviour is mediated and guided by that of another (Elias & Broerse, 1995). The infant's role is, however, more vital. Without the infant there is no context for motherese, no need for protoconversation, there is no role for mother because there can be no interaction.

In this study deaf infants display a range of behaviours, in the context of social interactions, that guide and mediate maternal behaviour. Behaviours such as eye gaze, mouth movement (e.g., gurgling, tongue protrusion, smiles), head movement and vocalisation are produced by the deaf infant, and defined as contributions. It is the deaf mother who defines these behaviours as intentional; however, research has shown that infants do actively contribute a variety of behaviours in alternation with their mothers' behaviours (cf. Freedle & Lewis 1977)

Infants are found to rely mainly on visual attention to control interaction. Visual attention, at onset, appears to signal an infant's readiness and intention to engage in interactions; while aversion of eye gaze appears to signal termination, or reduction in intensity, of interactions. Visual attention in infants also appears to play a monitoring function for the infant, as findings show infant eye gaze toward their parent begins either during, or immediately following, an infant vocalisation, and serves as an indicator of intentionality (cf. Schaffer et al. 1983; Schieffelin 1983). For deaf infants visual attention to their mothers is crucial for receiving information, and, as research indicates, is an extremely important factor in mother-infant communication (cf. Swisher 1991).

A further important feature of early infant behaviours is that of facial expression, or affect. Research shows that development of affective facial expressions begins with the infant displaying pleasure (i.e., smiling in response to positive stimuli) and displeasure (i.e., furrowing of brows and raised or tightened lips in response to negative stimuli) at about seven months of age. By the time infants are aged between ten months and one year of age they are able to discriminately use their mother's facial expression to guide their own behaviour (cf. Reilly & Bellugi 1996). Additionally, deaf infants, in particular, are found to display more repetitive physical activity, specifically more rhythmic hand and arm movements, than hearing children. Termed "mabbling" or "manual babbling", this behaviour occurs with greater frequency during interactive contexts with their mothers (cf. Koester 1995:149).

In this study deaf mothers' response to these infant behaviours (e.g., smiles, gurgles, 'mabbles') often results in deaf infants producing further such behaviours. When deaf infants spontaneously produce behaviours, mothers' responses indicate attention to the infant, afford guidance for the infant in producing further behaviours, and usually result in the mother continuing this type of interaction. Importantly, alternating types of interactions, such as those found in protoconversations, have been shown to affect the quantity of infant behaviours (cf. Bloom et al. 1987). The mutual influences, or reciprocal effects, of both infants' and mothers' behaviours thus appear important to the success of protoconversations.

Infant behaviours, elicited or spontaneous, are central elements of the structure of protoconversations shared by infant and mother. Infant behaviours are proto-'utterances' which play an important role in eliciting interaction, signalling needs, and providing both feedback and reinforcement to the mother. Behaviours by the infant help to shape the mother's responses, which in turn help the infant to

shape their own behaviours, and enable the infant to develop toward the understanding that their behaviours have influence and reciprocal effects in socially-structured interactions.

8.1.4 The Role of Structure

It is generally agreed that a certain degree of mutual influence by each participant is an important feature of early interactions, and one which aids children's development and competence within the structures of language (cf. Bruner 1983; Koester 1995). Structures found within prelinguistic discourse enable participants to interact in ways found essential to the infant's development of, and competence in language skills. In fact, much of the value attributed to early interactions as a context for language acquisition derives from their structure, often referred to as routine or ritualised exchanges, or formats (cf. Bruner 1983; Snow 1989).

In this study, routine exchanges such as games, rhymes, labelling or questions, and picture book reading play an instrumental role in drawing the infant into, and maintaining them in, episodes of joint attention and reference. Joint attention and reference underlie the ability to attend to language, and the objects and events to which the language refers. Further, joint attention aids the ability to attend to both a partner and a shared event, permitting learning about both linguistic and interactive conventions. Emphasis of features of rhythmicity, repetition, and exaggerated intonation, characteristic of routinised exchanges in this study, are found suited to attracting and maintaining infant attention. Sign language occurs, as a result, in an environment in which the deaf infant is most attentive, and therefore more likely to be receptive.

For the deaf infant the simultaneous attention to both object (i.e. visual) and commentary (i.e. auditory) found in hearing interactions is not possible. There is

potential conflict between observing both a visual language and the visual context in which it occurs. Linguistic comment, which is visual, must either precede or follow visual attention for the link between language and meaning to be explicit. In this study routine exchanges provide opportunity for the deaf mother to regulate and mediate the infant's visual behaviours toward language. Deaf maternal behaviours, such as that of marking the referent (e.g., pointing or signing onto an object) within contexts of joint attention and activity, aid in establishing and securing infants' visual attention. Further, by using language mainly to comment about objects or events within joint attentive context, deaf mothers model the necessity of dividing attention between the non-linguistic environment and the linguistic activity on hands, face and body, highlighting the importance of the division of visual attention.

Routine exchanges in this study also reflect structures used in everyday language, while at the same time recognising the infant's limited contributions. They are so routinised as to make very limited demands on the infant, with many merely consisting of naming of objects or activities, or being entirely physical. The unambiguous codability of these exchanges provides protoypical structures which are created turn by turn, and involve reciprocal and cooperative behaviours that are highly predictable, relevant to, and understandable from the context. In addition, routine exchanges model forms by which successful exchange can be achieved in Auslan. For example, there are distinct ways of initiating conversation that deaf mothers introduce, within the framework of routine exchange, that are suited to gaining or directing another's visual attention. The deaf mothers use adapted conventional strategies of attention-getting (e.g., tapping) and attention-directing (e.g., pointing) to initiate exchanges with their deaf infants. The initiation strategies deaf mothers use are visual (e.g., showing an object) and physical (e.g., touching an object), and oriented, by their nature, to initiate visual attention; they are also adjusted in form to ensure they are more explicit and direct (e.g., use of strategies

only within the infant's existing visual focus), and provide for infant response and comprehension.

The structure of routine exchanges in this study appears, overall, to provide for the deaf infant what is commonly termed a 'scaffold' (cf. Bruner 1983). The scaffold, or structure, provides for the infant an organised, integrated sequence of events which constrains attention, reduces possible actions and interpretations, and sets up predictable actions and expectations. Scaffolding is further provided for the infant by the selectivity and coordination of deaf maternal behaviour (motherese), offering redundancy (e.g., signs, actions), models to copy, and cooperative attitudes. Scaffolds support the infant in structured, constrained routines which, over time, become familiar by virtue of the fact that they are often-repeated, and involve the infant in the same routine sequence, with the same person, over and over again.

8.1.5 Summary of Prelinguistic Discourse

Much of early infant interaction takes place in constrained, familiar contexts and shows a high degree of structure and systematicity. The deaf infant and mother readily combine linguistic and non-linguistic elements in these contexts, from which intention is inferred, interpretation is assigned, and meaning is extracted. Prelinguistic discourse, then, involves two participants negotiating. Entry for the deaf infant into discourse appears to require the deaf mother playing an active role in provision of language that scaffolds, or is structured, to provide meaningful social interaction for the infant. Prelinguistic discourse, in the form of routine exchanges in Auslan, appears to provide the deaf infant with an environment supportive of their learning about the social and linguistic conventions of discourse interaction, and of assuring their continuity from prelinguistic to linguistic communication.

8.2 Continuity in Prelinguistic and Linguistic Discourse

Many researchers have questioned the extent of continuity between prelinguistic and later linguistic behaviour (cf. Harris 1992). It has been proposed that it is during prelinguistic interaction, such as protoconversation, that the child masters appropriate means for the realisation of later linguistic behaviours (cf. Bruner 1983). It appears that the question is not whether social interaction and language development are related in some way, but to what extent the social interactive contexts, in which young children experience language, provide for the development of language.

8.2.1 The Fine-Tuning of Language

Maternal adjustment, or 'fine-tuning' in motherese, has been found likely to vary from one period of development to another (cf. Bruner 1983; Ellis & Wells 1980). Support for this proposal has previously been found in replicated accounts of quite marked change in maternal speech to children of different ages (cf. Cross & Morris 1980; Snow 1994). Effective fine-tuning relies upon maternal abilities, both in monitoring the child's focus of attention, and in predicting the level of information about that focus of attention that will best suit the child's needs (cf. Tomasello & Todd 1983).

Focus of attention, or, more specifically, joint focus of attention underlies communicative exchange. Achievement of joint attention requires participants in an exchange to focus upon the same content at the same time (cf. Prezbindowski et al. 1998). Initially, in the present study, joint visual attention is the responsibility of the mother, who monitors the infant's visual attention and focusses interactive exchanges upon objects or actions to which the infant is already visually focussed. As the infant becomes older, to facilitate sharing infant attention deaf mothers tend

to emphasise themselves less, and draw the infant's attention toward object exploration. This change in role by deaf mothers occurs when the infant is around six months of age. This is consonant with the age at which research has shown infant interest in objects results in greater periods of time visually exploring, as their attention shifts away from being purely person-focussed toward increasingly object-focused interactive exchanges (cf. Adamson 1995). When deaf infants are around nine months of age, deaf mothers, although still focusing on aspects of the environment the infant is attending to, draw or lead the infants focus of visual attention to routine interactions about the environment. Research shows that, beginning at around nine months of age, the infant's ability to coordinate their visual attention between animate and inanimate aspects of the environment is typically acquired (cf. Waxman & Spencer 1997). Further, it is during this period that infants develop greater mobility, and are capable of moving away from their mother and exploring the environment on their own (cf. Swisher 1991).

It is well-established that the foundation of joint attention is laid early in the first year of life in typically-developing children (cf. Moore & Dunham 1995). In this study deaf mothers appear to use early interaction as a means of focussing their infant's attention in a manner which is facilitative to their infant's attentional capabilities. This is illustrated by shifts in maternal adjustment from following, to matching, to leading the infant's focus of attention, in accord with stages found for the course of infant attentional development. It can be argued, as done above for fine-tuning, that such changes in deaf mothers' speech are indirect responses to developmental changes in the infant.

Although the use of a visual linguistic system does not constrain the function of fine-tuning, which occurs in the development of early joint attention, it does constrain the form of fine-tuning. Co-ordination of information in the visual channel is reliant upon the establishment of joint visual attention. Visual reception

requires a directional focus in order to master co-ordination of both linguistic and non-linguistic information in the visual channel (cf. Marschark et al. 1997). Deaf mothers need to engender within the infant the ability to attend simultaneously to both a referent and a signed comment about it.

In this study demonstration of modality-specific fine-tuning in visual joint attention is also provided by the strategies of gaining attention. Deaf infants must learn to look to their mother to obtain information, and, in order to establish this pattern of attention, it is essential to create situations where visual attention to the mother can be reinforced. Deaf mothers use visual (e.g., waving a hand or object in front of the infant) or physical (e.g., tapping or touching the infant) strategies to attract the infant's visual attention, and then provide rewarding feedback (e.g., smiling, touching, or signing) when the infant looks at them. These strategies are also used to cue, or mark the target referents of language within the context of joint attention in visual (e.g., movement of an object) or physical (e.g., pointing on an object) ways. Use of strategies in this manner function to maintain language input, while directing the infant's attention to the mother and to interesting objects in the environment. This attention pattern allows establishment of joint visual attention for deaf mothers and infants, while also allowing the deaf infant to receive linguistic information produced by the mother, and non-linguistic information from the environment. This pattern further allows opportunity for the division of visual attention between activities and communication. By ensuring visual accessibility to linguistic and non-linguistic information when the infant's attention is gained, deaf mothers provide information that is meaningful, relevant and therefore worth looking for.

Fine-tuning, in this study, involves deaf maternal behaviours tailored to the visual and physical limitations of deaf infants, that facilitate infant's attention to linguistic

content, and is sensitive to infants' needs for visually accessible language. Episodes of joint attention accompanied by language, as in deaf mother-infant interaction found in this study, have previously been shown to be particularly supportive of language development (cf. Tomasello & Farrer 1986; Snow 1989). Joint, or shared focus of attention is also noted to aid children's understanding of another's focus of attention, and, as a result, makes the referent of a communication more salient (cf. Swisher 1991). Language, whether spoken or signed, needs to stand out from other stimuli in the environment in order for the infant to recognise that it carries information that is relevant, and, as such, should be attended to. It is the effectiveness of maternal fine-tuning that affords such opportunity, particularly in the establishment of joint attention.

8.2.2 The Conventional Link to Language

Joint attention formats, in the form of routine exchanges, provide opportunity for the distribution of attention over an ordered sequence of events. Routine exchanges as predictable utterance sequences do, however, serve a limited role, and are restricted to specialised functions in respect to an interaction. It is the structure and conventions within an exchange that guide the sequencing of interaction. Conventions in particular provide the acceptable, agreed upon, and formal means for social behaviour. It is suggested however, that, within the predictable sequences of routine exchanges, unique opportunities for children to learn and shift from 'natural' to conventional means of mediating social interaction are provided (cf. Bruner 1983:62; Ochs 1986).

Conventions which guide the sequencing of social interaction are evident and available in early routine exchanges. Deaf mothers in this study appear to begin the process of socialising the infant to such conventions from birth. One instance of this is the conventional means in Auslan by which speakers gain another's visual

attention for the purpose of communicative exchange. In Auslan social interaction is reliant upon the visual channel, as such conventions of initiation of attention involve both visual and physical strategies to achieve the visual attention of another. For example, the physical strategy of touch, used for initiating or gaining visual attention, is introduced into interaction in the first few months of the infant's life. Deaf mothers initially tap or pat their infant's body (e.g., on the arm, leg, or face) once or twice, and then leave their hand in contact with their infant until their infant looks to them, and joint visual attention is established. An increase in the number of maternal touches to gain the infant's visual attention occurs when the infant is around nine months of age. This increase appears to coincide with the tendency of infants at this age to focus on novel, changing or uncertain elements in a situation (cf. Kyle & Woll 1994). The potential for distraction of an infant's attention during this period may necessitate increases in touch to achieve the required joint visual attention. This is supported by decreases in maternal touching to achieve joint visual attention parallel to the developmental increase in infant ability to sustain and prolong eye contact, at around twelve to eighteen months of age. This pattern of periodic increase in touch, as a function of infant/child age, appears to occur in all initiation strategies used in this study. In each circumstance the pattern of maternal strategy adjustment appears reflective of an indirect response to a physical or cognitive developmental change in the infant/child.

The deaf infant's exposure to conventional means of initiation appears part of the fundamental process in socialising the child to the nature, sequence, and structure of visual-manual, communicative exchange. For example, the convention of touch functions not only to gain another's visual attention, which is necessary for visually-based communication, but also as a summons. A summons, in discourse, functions as a conventional means for a speaker to get another to accept the role of, and be available as, an addressee. Sequentially, a summons requires a response or

answer, and so functions as a conventional means to initiate a next action or turn in the structuring of an exchange. While visual attention is necessary for signed exchange, at the level of discourse content, conventional means to relate language to the non-linguistic context of occurrence is equally important.

Initiation conventions further function to identify for an addressee the objects, event and persons referred to by the speaker. Conventional initiations, to direct attention in Auslan, are also introduced within routine exchange in the first months of infant life. For example, in this study pointing is introduced as a means of directing the infant's attention to referents within the context of an interaction. Initially, deaf maternal pointing occurs only to referents that are in close proximity to the infant, within the existing visual focus of the infant. Pointing in this early stage involves the maternal adjustment of placing the pointing finger directly onto the referent, rather than using pointing conventionally (i.e., at a distance from the referent to indicate direction and/or general location). As the infant matures, pointing on appears to change to pointing to a referent; that is, as one form decreases the other increases. Pointing to a referent is somewhat less explicit than directly pointing on a referent, as the distance between the point and the referent is increased. As seen in initiation strategies to gain attention, change to the conventional means by which to direct infant's attention by deaf mothers evidences a shift from a more literal means for drawing attention (e.g., pointing on a referent within the infant's focus) toward the more conventionalised or adult means (e.g., pointing to a referent, directing the child's focus).

Adaptations, such as that of pointing to direct attention, familiarise deaf children with convention from an early age, again as a means by which to socialise the child to the nature, sequence and structure of visual-manual communicative exchange. The nature of a visual system of language requires sequential reference; that is, directing conventions function for the purpose of reference to an object, place or thing relative to the position of the speaker. Further, the concentration on the visual

channel constrains the speaker to establish the pertinent relationship between objects or participants, prior to commenting upon them. Very simply, one cannot speak about something that has not been established, and therefore is 'not there'. The convention of pointing is, further, a means of discourse for a speaker to get another to accept the role of, and be available as, an addressee. Direction of attention also requires a subsequent response, and so functions sequentially as a means to initiate a next action or turn in an exchange.

Language, principally as the controlling means of sequencing, is the primary convention in mediating social interaction. It is the convention of language that is the means for, and productive goal of, early routine interactions. Within this study language is introduced by deaf mothers to their infants from birth. Initially, maternal adjustment of sign involves deaf mothers moving signed language from the conventional location of speaker, to the parallel productive location of the addressee. To achieve this, deaf mothers relocate signs within their infant's pre-existing focus of visual attention, often producing signs within their infant's signing space, and on the body of their infant. Deaf mothers also produce signs on objects and about activities within the infant's visual focus, and take advantage of the infant's spontaneous looks which result in joint visual attention, to produce signs. All of these function to eliminate the need to elicit the infant's visual focus of attention to ensure language input. The maternal displacement of signs gives way to signing in the normal sign space around approximately one year of age, when deaf children begin to spontaneously focus visual attention on their mothers, or in response to conventional initiations by their mother (e.g., touch). As previously identified, a shift in maternal adjustment occurs in the conventions of language use, from matching signs to using sign to focus the infant's attention. Further, such adjustment also appears to be reflective of indirect response to developmental changes in the infant.

Language may itself function as conventional initiation. Certain signs (i.e., directional signs, e.g., LOOK) are used to direct an addressee's attention toward a referent within the immediate environment, whilst other signs (e.g., HEY) appear predominantly used to focus visual attention to the speaker. It is posited that signs used to focus attention, which sequentially follows strategies to direct attention, may also function to indicate the importance of the linguistic information to follow. Further, that maternal usage of signs for this purpose may focus attention on language, and, as a consequence, reinforce deaf children's awareness of signing as a primary convention for communicative interaction. One way maternal adjustment does appear to focus infant attention on language as convention is evident in the tendency of deaf mothers to exaggerate, elaborate or extend a given sign, by modification of the sign's conventional formational properties (e.g., movement, direction). It is probable that deaf mothers' use of signs in this manner is intuitive, functioning as a means to draw infant attention to a new or novel sign, to model the precise form of the sign, for naming purposes, to relate a sign to its referent, or as a tool by which to introduce the infant to the process of conveying multiple signals (i.e., of hands, face and body) in an integrated and coordinated manner.

Prelinguistic interaction, in the form of routine exchanges, certainly provides an important environment for learning about conventions. The prelinguistic period has elements, many of them relying on the visual channel, that are important to the later development of signed language. Maternal fine-tuning allows the deaf infant exposure to conventionalised forms of language interaction from an early age. To ensure effective understanding and response by their infant, deaf mothers appear intuitively to adjust certain aspects of particular conventions that may create difficulties in comprehension of form, or function, for the deaf infant It appears that maternal adjustment progresses toward more conventional usage, with less contextual support, as the links between convention and negotiated conventional ways of proceeding become more apparent.

8.2.3 The Structural Link to Language

The structure of interactional exchange is essential for the development and elaboration of the communicative functions of language. Structure provides the medium for conventionalisation and transformation from routine, to variable and dynamic systems of language exchange. Routine exchanges, such as those evident in early mother-infant interactions in this study, are highly conventionalised and it is probable that, because of the concentration on such, it becomes feasible for the mother to highlight certain features of both the linguistic and non-linguistic environments as salient.

In early interactions deaf mothers use certain conventions (e.g., touch, language) to focus their infant's attention, and, once attention is gained, use those conventions over and over again. This recurrence draws attention to conventions and the position they occupy in the sequence, which, in turn, directs attention to the structures of exchange. Recurrent occasions afford the infant opportunity to perceive structures created turn by turn, involving reciprocal and cooperative behaviours, and to analyse linguistic and non-linguistic behaviours in highly predictable and recurring contexts. It is suggested that structures inherent in routine exchanges provide an essential source of continuity for children that affords opportunity to learn to interpret another's behaviours from the position the children occupy in the routine exchange. Subsequently, the children learn to reproduce these same behaviours inside the exchange, usually moving from non-standard to standard linguistic behaviours (Bruner 1983; Camaioni 1986).

In this study, for example, continuity provided by structure appears inherent in labelling routines, from their introduction. The infant is introduced to the idea that 'things have labels' by the deaf mother's provision of labels as a manoeuvre for establishing joint visual attention. The structure of this routine exchange, that of the

query (i.e., the initiation) and the provision of a label (i.e., the response), is maintained by deaf mothers over the labelling of objects, actions and people within the context of early interactions with their infants. Repeated re-enactments make it easier for deaf infants to grasp the structure, and, as they progress in the acquisition of conventions (e.g., pointing, signs), to begin to produce parts of the structure for the function of reference. In effect, the steady structure of these exchanges holds the function constant, which makes it possible for the child to realise various communicative functions of language. Once the structures of labelling routines are firmly in place in the exchange, deaf mothers then begin to introduce comments about the referent, further extending the deaf child's linguistic ability. In essence, the deaf child is introduced to language, not simply to *know* the language, but to *use* the language within interactional exchange (Bruner 1983).

A further source of continuity provided by structure is equally evident in the routine exchanges of games and rhymes, which, from their earliest introduction in infancy through to childhood, have structural elements that remain constant. For example, a game of building a tower out of blocks and knocking it down has the structure of a beginning (i.e., stacking the blocks into a tower), a middle (i.e., the finished tower being knocked), and an end (i.e., the tower falling). Each participant's role is ascribed: in this case the building of the tower is the initiation, the knocking down of the tower and the laughter is the response. Initially, the deaf mothers in this study provide the initiation and response for their infants. When the game occurs often in a highly familiar situation in which behaviours form part of a predictable sequence, and the structure of the game becomes familiar to deaf infants, they begin to participate. As the infants increase participation, and are 'in tune' with the structure of the game, deaf mothers begin to diversify the elements of the game to provide a place for their children's increasing initiative.

These types of routine additionally call attention to exchange as an activity. For example, rhymes are routines which involve repetition of similar elements and animated, multi-modal (e.g., tactile, visual, linguistic) behaviours. These provide an ideal opportunity for a 'fun' exchange with mother, designed to stimulate and attract infants. Rhymes provide a structure imbued with clear and simple phrasing, and predictable sequence and action. In such 'tension free' contexts the possible meanings of the exchange are restricted, the responses expected are predictable, and the structure clearly presented. The infants are able to begin to participate by emulating the simple behaviours modelled repeatedly for them within this structure. When a pattern of behaviours, such as a game, is repeated consistently, with standard actions and sequences, it provides a framework for the infant. Each game provides an unambiguous set of actions and expectations, and an opportunity to cooperate in talk. In other words, the child learns that there are appropriate responses to particular, eliciting behaviours (i.e., initiation-response), and that there is a predictable sequence and structure to interaction. Further, the unambiguous structures introduce units in exchanges (e.g., initiation-response, initiation-response-feedback) which model for the deaf infant that some types of talk, by design, initiate next actions, dictate speaker change, require a response to be complete, and guide the content of that response. Over time, the child learns to reproduce simple systematic structures, and to such established structures more advanced communicative functions are able to be attached.

The use of routine exchanges provides a finite structure that permits reproduction. This allows deaf infants a scaffold in which to not only comprehend the pattern of structure in the exchanges, but to eventually participate in the structured exchanges as well. In the process of prelinguistic interaction, structure is connected with a range of contexts that provide linguistic and non-linguistic information, which, by virtue of their correspondence, allow function and form to be differentiated from

action. It is not that structure itself provides information about linguistic behaviours required by the infant, but, rather, it provides a 'vehicle' that makes conventional information about linguistic behaviours possible. In acquiring the linguistic meaning of appropriately sequenced behaviours, and learning to differentiate between linguistic and non-linguistic components of interaction, the child learns to recognise the function of structure of exchanges. Finally, the child learns to use conventional ways, negotiated by conventional structures of proceeding. Continuity of structure appears to function to provide a basis for the child to "progress by substitution" (Bruner 1983:126).

8.2.4 Summary of a Continuum

The social interactive contexts in which deaf children first experience language are epitomised by routine exchanges. Routine exchanges, which occur in the natural context of interaction between deaf mother and infant, provide conventional forms of interaction presented in conventional ways. Routine exchanges are highly structured sequences which provide a context, both amenable to insight on the part of the deaf infant and elaboration on the part of the deaf mother. Exchanges are initially presented and repeatedly performed by the deaf mothers with their infants. Deaf mothers continually adjust the structure of the exchange so that any behaviour the infant may produce is provided for, and contributive to the sequence. Through repetition of process and content the infant becomes familiar with the routine, and their contributions play a more active part in the structure of the exchange. As the child becomes more adept at producing conventional forms within the routine the existing structure is used by deaf mothers to increase the complexity of conventional forms. The continuity between prelinguistic and linguistic exchange appears to be one of function and form that derives from the conventionalised structure of the language interaction itself.

Conventionalised structures are, in part, governed by the facility of the adult-user (the mother) in interacting with their infant. The nature of fine-tuning found in this study shows maternal adjustment to discourse style to be related to the physical and cognitive stages of their children's development. It is not claimed that deaf mothers have a clear awareness of the progressive fine-tuning of their discourse. However, it has been shown that the type of communication features used unconsciously, or intuitively, by deaf mothers in this study are "ideally suited to support the human infant's natural inclination to adapt to its social world" (Koester et al. 2000:56). Deaf maternal fine-tuning in this case cannot be said to determine their children's language development, but can be said to have a causal effect in supporting and enhancing the behavioural quality and adaptive needs of their deaf children, particularly in discourse-related areas of social behaviour.

8.3 Linguistic Discourse

The routinisation of exchanges in prelinguistic interaction provides occasion for deaf children's first experience of productive exchanges. When deaf children's productive language emerges toward the end of the first year the routines of exchange are already established. Routines do not then disappear, but become progressively more controlled by deaf children as they develop increasing ability in productive language. Routines now afford guidance in respect of conventions, sequencing, and structures of exchange as the linguistic competence of deaf children becomes structured within productive discourse interactions. It is when watching language learning in the context of interaction that "prior knowledge becomes evident" (Ervin-Tripp 1986:329).

There are many instances in this study of deaf children's linguistic competence in productive discourse; however, a child's reaching of a particular stage in the

acquisition process is nevertheless tied to that individual's maturation (cf. Newport 1990). Maturation implies the development of certain cognitive and physical abilities, and, it is for this reason that this study is limited to provision of approximate ages of acquisition pertaining to deaf children's abilities in productive aspects of Auslan discourse.

8.3.1 Conventional Language

Conventions are the formal means by which to mediate social interaction. In order to participate effectively in social interaction children must master the conventional means to do so. The visual modality of signed language embodies constraints and resources which clearly influence the mediation of social interaction, specifically that discourse must be accomplished face-to-face via the visual channel. In Auslan culturally recognised conventions primarily involve natural visual attractants, and it is these visually-oriented behaviours that deaf children must both develop control of, and establish appropriate use of, to interact effectively in signed discourse.

Auslan is constrained principally by vision, as attention is attained and expressed explicitly through eye gaze direction. Eye gaze behaviours are therefore a primary conventional means for participation in interactive exchange. In this study visual attention for deaf infants initially occurs in response to initiation and solicitation behaviours by deaf mothers. By about one year of age deaf children begin spontaneous and frequent looks to their mothers to initiate visual attention. Even at this early age, deaf children appear aware of the necessity of visual attention for participation in signed exchanges. This awareness is shown by children's use of sustained (e.g., mutual visual attention for duration of a turn), spontaneous (e.g., directing visual attention to another for interactive purpose), and co-operative (e.g., reciprocal visual attention with another) eye gaze behaviours for conventional

purposes. Awareness is further indicated by the fact that children generally do not initiate a signed exchange without establishing visual attention between their mother and themselves. Eye gaze at this stage appears, essentially, to function for deaf children as a means of determining where maternal attention is directed, and indicating the direction of their own attention.

Throughout the first two years of life children develop greater facility in "gaze-understanding" (Doherty & Anderson 1999:550) which is essential for the perception and direction of attention. Refinement of eye gaze patterns (i.e., rapid, sustained and prolonged) appears well established for deaf children by about two years of age. Resulting in smoother, more rapid eye gaze behaviours, this refinement gives deaf children greater control of visual attention in response to, and direction of, conventional means of initiating, sustaining and terminating turns at talk in the maintenance of signed exchanges.

Conventional behaviours that further contribute to the maintenance of visual attention in Auslan are those found in initiations. Initiation strategies function to obtain another's visual attention for the purpose of signed exchange. In this study, deaf children exposed to initiation strategies prelingually, appear to gain productive use of these conventional behaviours quite early. For example, by the age of one, deaf children use the strategy of touch (i.e., pat or tap) to gain their mother's visual attention. Children's productive use of initiation strategies appears to develop in an interrelated manner with physical and cognitive development. For example, the direction of a touch onto another reflects physical skill, and the conceptual understanding that to direct a touch, or respond to touch, is a means to attain visual attention reflects cognitive skill.

Continuing evidence of such pre-conditions for acquisition is provided by the later use of the initiation strategies of waving and vibration. Although deaf children

respond to these strategies prior to their productive use, both waving and vibration do not appear productively until deaf children are between two and three years of age. Prior to this age, waving appears constrained by developmental acquisition of the particular handshape required (cf. Boyes-Braem 1990), and the physical stature to position the wave effectively. Vibration appears constrained by cognitive development, particularly the concept that certain substances (e.g., wood, plastic) conduct the sonics of impact (i.e., taps/hits) that can be felt by someone in contact with that substance.

Further evidence of acquisition constraint is evident in the use of conventional linguistic forms for productive exchanges by deaf children. Signing by deaf children, as a conventional means for language, does not occur in this study prior to their demonstration of co-ordination between eye gaze behaviours and non-conventional gesture (e.g, reaching, grabbing). Sign production by deaf children does appear prior to one year of age in this study, with infants as young as eight months of age producing 'sign-like' behaviours. These productions, similar to 'baby words' in spoken language, show a lack of phonological precision and, in most cases, are simply a reflection of naturally-occurring, infant hand configurations frequently observed among gestures of normally developing infants (e.g., grasping motion of hand) (cf. Von Tetzchner 1984). Deaf mothers, like hearing mothers, simply interpret certain child behaviours as communicative, in this case the particular infant behaviour is interpreted as a lexical sign. Interpreting infants' behaviour as communicative creates the necessary conditions for children to learn to communicate, and, so, has a facilitative effect for discourse acquisition (cf. Lock 1978). However, the focus on discourse, rather than lexical acquisition, does not enable this study to specify features of deaf children's acquisition of the signed lexicon. In terms of the conventional use of language for discourse purposes, however, the deaf children have, by the age of two, begun to take their turn quite

often, and a greater number of these turns consist of linguistic rather than simply non-linguistic behaviours. Deaf children's use of conventional signs within structured exchanges does, however, suggest that they are learning language incrementally, acquiring lexical items and using them productively in context-specific ways.

A clear indication of linguistic ability is not only the intention to communicate, but having the conventional means to express that intention (cf. Bruner 1983). Deaf children in this study show early mastery of culturally recognised visual, gestural and linguistic behaviours (e.g., eye gaze, touching, waving, signing) for the purpose of interaction. These conventional means are introduced prelingually by deaf mothers in routine exchanges, and fine-tuned in form and function to the emerging productive capabilities of their deaf children. Routine exchanges appear to be the means by which deaf children's acquisition of productive language is scaffolded toward the use of conventional behaviours within productive discourse structures.

8.3.2 Sequential Language

The organisation of discourse is embodied in sequencing, which specifies, generally, the type and content of utterances to be expected. Participants in discourse are able to predict what is likely to be said, because of the constraints of sequence. "Predictions are possible because language is structured ...(s)uch intuitive predictions are in turn part of setting up language structures" (Stubbs 1983:96). Sequencing therefore involves systematic organisation of discourse relevant to the structures of language. Discourse in signed language is equally constrained by sequential organisation (cf. McIlvenny 1995). The organisation of signed discourse is, however, embodied in visually-oriented sequencing. In this study visually sequential constraints in Auslan discourse are observable from the earliest routine exchanges between deaf mother and child.

The fixed sequencing of early routines provides for the initial exposure of deaf children to the visually-oriented behaviours of signed discourse. For example, a basic sequence in early exchanges is one in which a participant (i.e., mother/infant) produces a behaviour (e.g., sign/smile) which receives some behaviour (e.g., smile/touch) in acknowledgment from the other participant (i.e., mother/infant). The sequence is that of a basic initiation-response structure, and the behaviours demonstrate the visual-orientation of the sequencing. The repeated production allows deaf infants, over time, to interpret and subsequently reproduce these same behaviours inside the sequence of such structures.

The reliance on visually-oriented behaviours in Auslan exchanges particularly affects the timing and co-ordination of signed discourse. Constraints on signed language reception dictate that co-ordinated visual attention must be gained prior to an initiation for a contingent response to occur. While its sequential, rather than co-ordinated, visual attention must either precede or follow visual direction of attention to objects and other participants. For example, the behaviours of directing attention introduced by deaf mothers in early routines in this study are those of pointing and showing. Maternal adjustments initially limit reference to immediate contexts in the exchange by means of pointing directly onto, showing, and signing close to the referent, and make their comments precede or follow deaf infants' visual attention to the referent. This fine-tuning makes the referent of the comment more direct and explicit, enabling the deaf infants to successively link language and that to which it refers. Adjustments, such as these, result in a decreased need for the divided visual or cognitive attention of deaf infants, which helps establish links between language and reference.

The productive use of sequential reference by deaf children in this study first appears at around one year of age, in their strategic use of pointing and showing.

Deaf children have learned at this age to productively use pointing and showing as sequential means to direct mothers' attention toward a particular referent. Sequences of exchanges provide a shared and familiar context for deaf children to observe the continuity of successive events, which allows them to absorb sequential structures of the discourse in a visual manner. These visual behaviours are reflected in the competence of deaf children's eye gaze behaviours at this age to focus their visual attention on the speaker, then visually follow the speaker's point to the referent, and return visual attention directly to the speaker for the next comment. Not only do deaf children show competence in the eye gaze behaviours of an addressee, but they experience success in productive visual behaviours of a speaker, reinforced by the co-operative visual attention of deaf mothers (i.e., the addressees) focussing on their children (i.e., the speakers) in response to such initiations.

This increasing facility with eye gaze behaviours and production of finite sequences at around one year of age appears, in this study, to 'spur on' deaf children's use of productive language. This facility further appears to provide pre-conditions for deaf mothers to begin to modify the direction of their children's focus of attention toward language by reducing visually explicit reference toward objects outside the social interactive exchange. Deaf mothers draw deaf children's focus of attention toward language by shifting focus from previous literal forms of referencing toward more conventional forms of referencing. For example, pointing onto an object within the existing context now becomes pointing *to* an object. By drawing the contact of the point away from the referent, the deaf mothers' modification moves the form of pointing toward the adult form. Further, this conventional shift in form by deaf mothers is supported by the introduction of a more conventional form of linguistic reference, that of using attention-directing signs (e.g., LOOK, HEY).

Although the extent to which mothers' adjustment of behaviours matching the sequence of the interaction (i.e., the focus of interaction) has been found to facilitate children's productive language development (cf. Tomasello & Todd 1989), developmental and cognitive constraints may be engendered in certain functions of productive language use. This is supported by the fact that, although the deaf children in this study show appropriate sequential visual and responsive behaviours to attention-directing sign by deaf mothers, very few instances of children's productive use of sign for the purpose of direction occur. The link between language for direction, and as the referent of that direction, is certainly less explicit than that of direct physical referents of language. Perhaps, the deaf children in this study have not yet learned to use sign for the purpose of directing attention toward themselves or the importance of their own potential communications. Whatever the reason, the pre-conditions of productive use of language for direction of attention are not clear. All that can be stated is, that instances of productive use of sign for attention-direction in this study occur when deaf children are aged between two-and-a-half and three years of age.

Acquisition of sequentially-signed discourse for deaf children is not just the acquisition of linguistic elements, but learning how to control aspects of non-linguistic elements that have particular relevance for visual sequencing of signed discourse structures. The structures evident in prelingual, deaf mother-infant exchanges provide deaf children with experiences of repeated and finite sequential behaviours, from which children learn to assign meaning to interaction sequences. Deaf maternal fine-tuning, and repetition of finite routine sequences of initiation and response provide a scaffolded environment in which deaf children become aware of specific sequential features within discourse. The pattern of maternal adjustment, and deaf children's developmental progression in sequencing, indicate that certain physical and cognitive developments may constrain certain stages of

this acquisition process. Deaf mothers not only construct a linguistic environment which is conducive to acquisition processes, they use visually-oriented behaviours that accommodate the need of their deaf children to learn negotiated ways of proceeding in Auslan discourse structures.

8.3.3 Structural Language

Exchanges are the basic, or minimal, unit of structure used for the organisation of discourse interaction. These basic units of exchange combine in various sequential ways to construct the hierarchical structures of organised discourse. In Auslan, structures of discourse are organised in particular ways in, and through, the visual modality. The prelinguistic context of early exchanges, in which deaf children in this study first experience language, provides a set of organised practices which facilitate the children's perception, analysis and practice of Auslan within conventional structures. When deaf children's productive language enters into such routine exchanges it does so in a structural context that is already established, and facilitative of further language development.

Introduced prelinguistically, minimal units of exchange are routinised to contain finite information for easy accessibility of more highly developed structures in later interactions. For example, initiation-response is one of the most basic of exchange structures, and it is upon this unit of exchange that many variations of early routines are built. Prelinguistically, the primary activity deaf infants in this study are involved in is that of initiation of joint visual attention with their mother, and her provision of a response (e.g., label for an object or action). This labelling involves a simple structure of initiation-response that later evolves into a question-answer structure. Repetitive models of initiation and response are initially provided by deaf mothers' early labelling, with initiations consisting of joint

attention, pointing, showing or touch, and simple questions (e.g., What's this?), and responses consisting predominantly of the provision of labels for objects and actions. Deaf children's first productive constructions can be seen to reflect these units of minimal structure, with their use of pointing, showing or eye gaze, either alone or in combination, as initiations directed to gaining a response from their mother; actively seeking an identifying sign (i.e., a label) for the object of their interest. In this study, deaf children between the ages of one and two, show successful perception and production of initiation and response structures, and appear, initially, to use such structures primarily as productive means to seek language. Early productive success for deaf children, in exchange structures, appears to encourage acquisition of language (i.e., particularly acquisition of lexical items), extension of language into new contexts, and regulation of language toward appropriately-structured exchanges.

As deaf children increasingly engage in successful interaction, structures of exchange appear to further provide for their increasing productive capabilities. For example, the picture book reading exchange, in its earliest form provides for a simple and recurrent joint exchange, with the primary routine simply that of joint visual attention to the picture book and the provision of appropriate labels for pictures. Picture book exchanges also provide an additional option for summing up, or closing an exchange structure, by the provision of feedback to a response (i.e., initiation-response-feedback). In this study, deaf children, already familiar with turn-taking and the basic initiation-response structure, adapt quite quickly to the provision of this optional third element of structure. Deaf children, at around one year of age, primarily use non-linguistic behaviours (e.g., eye gaze, smiles) as a means of responsive feedback, with linguistic behaviours (e.g., signs, nods) for feedback structure becoming evident at around one and a half years of age. Linguistic feedback at this age typically consists of deaf children producing

imitations of deaf mothers' sign models, but at around two years of age deaf children's responsive feedback can be seen to consist of spontaneous and independent production of signs.

Deaf mothers do not appear to relinquish their endeavours to teach their children about the use of signed discourse structure. In this study, for example, the earlier displacement of signs by deaf mothers into children's signing space is replaced by signing in normal signing space, there is minimal use of physical reorientation of children toward the visual focus of attention, and maternal behaviours of visual attention (e.g., showing, pointing) are predominantly used to direct children's eye gaze toward the focus of attention. Deaf maternal behaviours appear to shift toward interactions becoming more cooperatively organised structures rather than adult-directed ones. Further, deaf maternal utterances appear to shift in focus toward language content, showing increased use of questions, repetition, expansion, and provision of correct or appropriate responses to their children's utterances. Previous findings show that maternal input containing greater proportions of expansions and extension of children's utterances is facilitative to increases in children's productive use of language (cf. Camaioni 1986). Overall, it appears that deaf maternal fine-tuning is both representative and responsive to deaf children's growing productive abilities, and, as such, appears facilitative of deaf children's increased productive use of language.

In this study deaf children, aged between three and four year of age, show increased competence in productive language ability, and, for the most part, adult-like facility within structures of exchange. Deaf children generally show successful information exchange within structures, collaborate with their mothers by provision of reliable and appropriate responses to maternal initiations (e.g.,

questions, directions), and show appropriate initiation and feedback structures as they actively seek information in exchanges. This competence is further evident in deaf children's successful use of visually-oriented behaviours required for sequential turn-taking to initiate, continue, and complete turns within structures of signed exchange.

In most instances, as stated, deaf children's behaviours are facilitative of successful exchange. However, deaf children also show instances of incongruous behaviour with the exchange. For example, there are instances where deaf children avoid reciprocal attention, break eye gaze prior to completion of mother's utterances, and turn their head or body away from the ongoing exchange. Such violations contrast with the previously-mentioned facility of deaf children in such conventions, and the apparent competence in structure. As noted by previous research, however, the fact that young children are "able to violate the rules of routines ... suggests that they have a very well-developed ability to remember the structure" (Harris 1992:32). It appears, therefore, that deaf children's behaviour may not imply a lack of facility, but rather, deliberate adaptations of the structure toward participating in the exchange as they will; that is, using the well-developed structure as a resource to intentionally direct the discourse as they desire, even to the extent that they 'ignore' the ongoing signed discourse because they do not wish to 'hear' what is being 'said'.

Deaf children's successful acquisition of early structures of routine exchanges, and deaf maternal fine-tuning, appear to provide the means by which deaf children further accomplish co-ordinated structures of exchange, this, in turn, develops further productive language ability. The development of deaf children's productive language provides for increased discourse options, which allow deaf children the flexibility of productively selecting, for themselves, various strategies by which to manage signed discourse.

8.3.4 Summary of Linguistic Discourse

Acquisition of discourse for deaf children is not just the acquisition of signed language, but learning to master the visual conventions and sequences of the basic structures of signed exchange. For deaf children, this acquisition appears to be scaffolded by prelingually introduced routine exchanges, which, through repeated interaction and fine-tuning by deaf mothers, afford guidance in socially agreed forms of interaction in signed discourse. Deaf maternal fine-tuning affords guidance in ways which appear progressively adapted to deaf children's physical and cognitive development, and to their productive language capabilities. It appears principally designed to support deaf children's progression from non-conventional to conventional language behaviours, and extend productive language capabilities toward socially structured discourse.

The effectiveness of such guidance for deaf children appears reflected in their progression from non-conventional behaviours in infancy to the use of productive conventional behaviours in routine exchanges in early childhood (i.e., by around one year of age). This effectiveness is further shown by the progression of deaf children's rudimentary competence in discourse, at around one or two, toward adult-like competence of discourse abilities and skills which are similar to those of their deaf mother, by three to four years of age. Once begun it appears that the acquisition of signed discourse competence in Auslan is not only continuous, but cumulative. Deaf children's acquisition of adult-like discourse competence by the age of four does not, however, remove their need for guidance and support, for it is only at some later point in their language development they are able to regulate the structuring of signed discourse "without the guidance or scaffolding of more experience others" (Budwig et al. 1986:87).

8.4 Concluding Remarks

How children acquire language and the ability to use language in order to communicate has long been a question of child language acquisition research. As yet there is still no definitive model of child language acquisition. However, developmental trends in research have led the focus of acquisition to be placed on the child as actively developing language in context, through interacting with others (cf. Ninio & Snow 1999). In line with this interactional perspective, acquisition research has moved toward more naturalistic and interpretive approaches of examination, particularly that of discourse analysis. This thesis, viewing language acquisition from a premise of interaction and discourse, examined the development of discourse by deaf children acquiring Auslan as a first language.

This study examined aspects of discourse previously proposed to be involved in the development and function of social interaction (cf. Harris 2000; Snow 1994). Focussing on dyadic interactions between deaf mother and deaf infant, the establishment of prelinguistic communicative interaction was examined first. In Auslan, prelinguistic interactions in the form of protoconversations provide deaf infants' first communicative experience of signed conversation. Deaf mothers, like hearing mothers, engage in protoconversations with their deaf infants that model interactive discourse, and, also the nature of the communication system that is to be acquired. These early interactive experiences for deaf and hearing infants alike, provide introduction to fundamental behaviour patterns for language use, and appear an important basis for social language development. Protoconversations provide the deaf infant with an environment in which prelinguistic behaviours are given meaning by maternal interpretation prior to the onset of productive signed

language. Maternal interaction style, or motherese, in Auslan, demonstrates communicative modifications parallel to those found facilitative for the acquisition of spoken language. Auslan motherese is similarly fine-tuned to the infant's attentional needs and capabilities, and structured to engage the infant's attention and involvement in communication. Overall, the acquisition of prelinguistic development of Auslan shows a strong pattern of convergence with that of spoken language development. Effects of modality in the early stages of Auslan acquisition appear limited to the requirements of modality constraints. Viewed as prerequisite for language development, early prelingual interactions enculturate deaf and hearing children alike, by serving as an environment for early language mediated learning.

In this study, the continuity between prelinguistic and linguistic communication becomes increasingly evident as discourse structures begin to mediate interaction. Exchange structures, routine in prelinguistic discourse interactions, are evident in deaf children's first productions which typically involve eye gaze, pointing, and showing behaviours used for labelling purposes. Deaf children's use of conventional behaviours in structures that closely resemble those of earlier routine exchanges, indicate learning of discourse structures on the basis of repeated prelinguistic exposure and interaction. For deaf children, language appears initially acquired as an mean by which to regulate joint attention and activity in social interaction, "its very structures reflects these functions and its acquisition is saturated with them" (Bruner 1975:2).

Although deaf children's initial use of productive language is not primarily communicative in nature, toward the end of their first and beginning of their second year, signed language is incorporated into routine exchanges. Deaf

children, expanding on earlier experiences, begin to develop appropriate conventions, sequences and structures in their discourse, which are similar to those previously found typical of structured discourse in spoken language (cf. Psathas 1990). In this study, between the third and fourth year, deaf children's productive language becomes characterised by greater contingency and relevance, and more adult-like competence in discourse structures. For deaf children language becomes a conventionalised extension of cooperative social interaction. As deaf children progressively maintain greater structural and linguistic contingency in discourse, deaf mothers continue to provide language fine-tuning that is not only propitious to their children's acquisition of discourse, but also to their productive language. The more productive language plays an expanding role in deaf children's social interaction, the more deaf children appear to rely upon conventionalised structures of Auslan discourse in their striving for linguistic competence.

In sum, research findings to date have shown that the sequence and stages of language development for deaf children acquiring signed language parallel those of hearing children acquiring spoken language (cf. Lillo-Martin 1999). This study's findings show that the acquisition of discourse in Auslan, substantially parallels the developmental path previously found for hearing children of spoken language (cf. McTear 1985). While modality-specific factors pertinent to a visual linguistic system are evident in this study, the acquisition process is not impeded by this, but rather, enhanced. The findings suggest that language modality is not an impediment to language development, it is the accessibility of language that is critical to its acquisition. Whether signed or spoken, languages are equivalent in their potential to provide information and experience necessary for the development of normal social interactive discourse. In this study deaf children

acquire the native signed language of their parents and become native users of Auslan naturally. This finding continues the 'legitimisation' of signed language as 'true' language, as structures inherent to the organisation of discourse generalise across modality and emerge from the same communicative base for children acquiring language.

The findings of this study provide for a wealth of implications. However, the author, while acknowledging the traditions of research, would simply like to state that the purpose of this thesis was to examine the native acquisition of a natural language, Auslan; to provide the perspective that language is amodal in purpose, function, and use, and to all intents and purposes is acquired by children to do what people associating with people do.

> "Sign language is more than a simple tool or a means of communication. It is a language in its own right. Over and above its role as a means of communication, a language is what creates identity and position in a social world. Neither god nor taboo, sign language is a priceless asset in the life of a deaf child, an asset that no technique or tool of communication can replace" (Bouvet 1987:59).

Appendices

1

Appendix

Letters to Participants

1. Initial Letter Requesting Participation

Dear ..... ,

My name is Peita Littleton, and I am a student of Linguistics at the Australian National University in Canberra. I am about to undertake writing a PhD thesis on how deaf children acquire Auslan as a first language.

I recently spoke with [redacted] at the Hearing Assessment Centre, about my proposed thesis and the aims and direction of the study I wish to undertake. She was very helpful, and offered to circulate this letter on my behalf to families she believed may be able to help me with my research.

I am interested in researching how deaf children acquire Auslan as a first language. It is my belief that, as in the case of spoken languages, children learning signed languages go through a number of distinct developmental stages of language. In each stage there are a number of different strategies that a child may use to learn their language and make progress towards full language development.

Research in this area has predominantly been done on American Sign Language, and it would be worthwhile to show this pattern in Auslan. An understanding of how children learn to use language would provide helpful guidance in developing teaching methods beneficial to a child's formative educational years.

In order to do this I would need to obtain data of children in the process of acquiring Auslan as a first language. It would be most helpful to have videotape of a child signing. In order for this to be neither intrusive nor distressing to the child it would be ideal for this to be done in the home, either by the child's parents or someone the family knows and is comfortable with. In total, I would only need about 30 minutes of the child signing to do an initial analysis.

The analysis of the videotapes would be conducted by myself, and the only other person to view the tapes would be my supervisor, a linguist at the Australian National University. Further, the child would only be identified using its sex and age; no other personal details would be required, or used in the research report. All information provided would be kept confidential.

It would be very helpful to my work if you would consider giving permission for me to have access to the archival videotapes of your child's Early Intervention Program. Further, I would like to ask if you would consider allowing your child to be videotaped for the above-mentioned research.

If you require further details prior to making your decision, or you wish to give permission for me to have the details of your child mentioned above, and/or would like to participate in the videotaping of your child please contact [redacted] at the Hearing Assessment Centre.

Thank you for your consideration of this letter.

2. Follow-Up Letter Requesting Additional Participation

Dear ..... ,

My name is Peita Littleton. I am the student at the Australian National University in Canberra that [redacted] has mentioned, who is studying Auslan.

I understand from [redacted] that she has discussed with you the study I wish to conduct and that you have expressed interest in being part of this study.

It will involve having a video camera provided to your family - for at least 6 months - for your use. I would like your family to videotape your child, or children learning or speaking Auslan. What would be needed is, for 20 minutes in the fortnight, the child or children to be videotaped talking to one parent during something that they do everyday - such as meal-time or bath-time or play-time. What I am interested in is the conversations that you have with your child in a normal day at home - it doesn't matter what the conversation is about, because in order to learn a language we have to use it - and that is what I am trying to look at.

[redacted] will introduce you to [redacted] who will be the person to provide and explain the video camera (only if you are unfamiliar with one), and provide the tapes each fortnight for you to use for the taping of the conversations. He will also be available if something goes wrong with one of the cameras.

If you are still interested in being part of the study could you please inform [redacted].

Thank you very much for your help in this study.

3. Permission

The corpus of this research was collected by me during research fieldwork, and the Institution through which this research was arranged. The Institution, due to certain ethical considerations discussed by the Director of the Institution and myself, provided initial liaison with potential participants for this research. During the phase of informing potential, participant families of the research to be undertaken, and that of gaining written permission of potential participation, there was no direct contact between participants and myself. The letters provided above were drafted by myself and sent to the Institution. The Institution handled administration of the distribution of letters, and return correspondence from the participants. Written permission from participant families has remained the property of the Institution. The Institution, due to inherent Confidentiality considerations, has requested that specific reference be withheld from publication, but has conceded to provide evidence of written permission by participant families should the need arise.

2

Appendix

Notation Conventions

Transcription	Meaning	Explanation / Example
GLOSS	name of sign	BOY = the sign 'boy'
G#L#O#S#S	sign formation	a sign which is formed slowly and/or formed very clearly
{gloss}	sign context	{to book} contextual information about the preceding sign, i.e., this sign is being made toward a book
(gloss)	gesture	a description of some type of gesture, e.g., (nod) to indicate 'yes'/approval/pleasure
((gloss))	action	a description of some type of action performed by the 'speaker'
GLOSS [GLOSS] GLOSS [GLOSS]	simultaneous/ overlapping signs	instances where one utterance overlaps another, or two utterances occur simultaneously, are marked by square brackets at the point at which overlap begins and ends
gloss	translation	English translation of Auslan
GLOSS @@@	laughter	laughter is represented by the symbol @. As laughter is able to co-occur with signing, these symbols may be incorporated within the gloss, e.g., LOO@K@ point {to clown}

Transcription	Meaning	Explanation / Example
$GLOSS_{+}$	repetition of sign/ action	CAT_{+} indicates the sign is repeated once, CAT_{++} the sign is repeated twice
$\overline{\text{GLOSS}}$	eye gaze direction	indicates the eye gaze of the addressee is: —— toward the speaker - - - tracing the signs being made ↑ ↑ upward ↓ ↓ downward ← ← toward the left of the speaker → → toward the right of the speaker
( )	unknown sign	a sign that is not discernible
//GLOSS// //GLOSS//	co-occurring signs	two signs may occur simultaneously, due to the spatial orientation of sign language
GLOSS (0.6)	pause	intervals in the stream of talk are timed in tenths of a second and inserted within parentheses, either with an utterance or between utterances
↑ GLOSS ↓ GLOSS	marked shifts	marked increases or decreases in action or utterance are indicated by upward/ downward arrows, immediately prior to the increase or decrease
<u>GLOSS</u>	emphasis of sign	<u>NOW</u> would indicate that the sign for 'now' has been made emphatically, to stress the meaning of the sign
°GLOSS°	reduction sign	°LATER° would indicate that the sign for 'later' has been made in a reduced manner, and, in this case, would indicate the meaning of only a 'short while later'
>GLOSS< <GLOSS >	part of an utterance	when the utterance is enclosed by: > < it is delivered at a faster pace < > it is delivered at a slower pace than the surrounding signs

Transcription	Meaning	Explanation / Example
??? GLOSS	non-manual	indicate the following eyebrow gestures: ??? eyebrows raised ¿¿¿ eyebrows lowered vvvv eyebrows furrowed
< GLOSS	non-manual	nose gesture
GLOSS OOO	non-manual	indicate the following mouth gestures: OOO open mouth ooo partially open mouth *** grimace showing teeth • • • slight grimace no teeth visible 'gloss' word is being mouth as sign is being performed ~ ~ closed lip/partial smile ≈ ≈ open mouth/full smile v open mouth with tongue protrusion

(source: Littleton 1995, 1996)

These notations are presented on different lines, similar to the bar form of musical notation:

Line 1:	? ? ?	eye brow gestures
Line 2:	———————	eye gaze
Line 3:	GLOSS GLOSS GLOSS	base signs
Line 4:	OOO ooo ~~~	mouth gestures
Line 5:	*gloss gloss gloss gloss*	English translation

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